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# EDISON
## ELECTRIC INSTITUTE
# BULLETIN

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PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

# THE ELECTRIC LIGHT AND POWER INDUSTRY

*Current Statistical Data Covering 100 Per Cent of Industry*

*February, 1945-1946*

## SOURCE AND DISPOSAL OF ENERGY (In Kilowatthours)—MONTH OF FEBRUARY

| | 1946 | 1945 | % |
|---|---|---|---|
| **GENERATION*** (Net) | | | |
| By Fuel Burning Plants | 9,978,059,000 | 12,107,981,000 | −17.6 |
| By Water Power Plants | 6,238,990,000 | 5,912,546,000 | + 5.5 |
| **Total Generation** | **16,217,049,000** | **18,020,527,000** | **−10.0** |
| Add—Net Imports Over International Boundaries | 122,610,000 | 89,871,000 | +36.4 |
| Less—Company Use | 135,156,000 | 134,397,000 | + 0.6 |
| Less—Energy Used by Producer | 68,620,000 | 11,916,000 | ..... |
| **Net Energy for Distribution** | **16,135,883,000** | **17,964,085,000** | **−10.2** |
| Losses and Unaccounted for | 1,215,653,000 | 1,170,330,000 | + 3.9 |
| **Sales to Ultimate Customers** | **14,920,230,000** | **16,793,755,000** | **−11.2** |

## CLASSIFICATION OF SALES

| | | | |
|---|---|---|---|
| **NUMBER OF CUSTOMERS—As of February 28th** | | | |
| Residential or Domestic | 28,391,651 | 27,561,123 | + 3.0 |
| Rural (Distinct Rural Rates) | 1,244,038 | 1,147,105 | + 8.5 |
| Commercial or Industrial: | | | |
| Small Light and Power | 4,452,184 | 4,262,500 | + 4.6 |
| Large Light and Power | 164,722 | 152,293 | |
| Other Customers | 118,184 | 118,248 | ..... |
| **Total Ultimate Customers** | **34,370,779** | **33,241,269** | **+ 3.4** |
| **KILOWATTHOUR SALES—During Month of February** | | | |
| Residential or Domestic | 3,504,561,000 | 3,052,114,000 | +14.8 |
| Rural (Distinct Rural Rates) | 243,019,000 | 203,497,000 | +19.4 |
| Commercial or Industrial: | | | |
| Small Light and Power | 2,708,089,000 | 2,642,274,000 | + 2.5 |
| Large Light and Power | 7,082,959,000 | 9,311,655,000 | −23.9 |
| Street and Highway Lighting | 198,398,000 | 191,997,000 | + 3.3 |
| Other Public Authorities | 518,063,000 | 704,410,000 | −26.5 |
| Railways and Railroads: | | | |
| Street and Interurban Railways | 394,045,000 | 420,632,000 | − 6.3 |
| Electrified Steam Railroads | 220,158,000 | 220,777,000 | − 0.3 |
| Interdepartmental | 50,938,000 | 46,399,000 | + 9.8 |
| **Total to Ultimate Customers** | **14,920,230,000** | **16,793,755,000** | **−11.2** |
| **Revenue from Ultimate Customers** | **$288,746,200** | **$287,496,000** | **+ 0.4** |

## RESIDENTIAL OR DOMESTIC SERVICE

| | | | |
|---|---|---|---|
| **AVERAGE CUSTOMER DATA—for 12 months ended February 28th** | | | |
| Kilowatthours per Customer | 1,257 | 1,167 | + 7.7 |
| Average Annual Bill | $42.49 | $40.73 | + 4.3 |
| Revenue per Kilowatthour | 3.38¢ | 3.49¢ | − 3.2 |

(*) By courtesy of the Federal Power Commission.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 14 MAY, 1946 No. 5

# "Ever Ready for Any Emergency, Were the Utility Men"

**By Lieutenant General O. W. Griswold, USA**

At the Utilities Wartime Aid Luncheon
Boston, Mass., 11 April 1946.

IN REPRESENTING the War Department today, I first want to thank all of you for the splendid service you have rendered your country. By that service you have illustrated the fact that the power of making continuous efforts results in genius. Thus, through genius, you accomplished seeming miracles. Without the unfailing support you gave us during the stark days of 1941 and 1942, we of the Armed Services could not have won the recent conflict.

War is wasteful and destructive. Yet when it is our duty to fight, we must do so with every resource at our command. Anything we do to help shorten the fighting in turn helps to preserve life and property, and to minimize human suffering.

In highly industrialized New England, which also embraces the geographical limits of the First Service Command, the Utilities Companies faced a double-barreled program. In addition to meeting demands of the greatly accelerated war manufacturing program, it had also to provide for a huge Army training program. The services produced and furnished by the Utilities Companies of New England were the very life blood of the war effort in this area. They made possible the speedy and efficient production of the sinews of war, the planes, guns, ammunition, and a thousand and one other items. They did all this with success, and then, on top of what seemed impossible, they assumed the obligation of providing utilities services to the Army training program. To posts, camps and stations all over this command went expert utilities men to guide and assist the Corps of Engineers in the vast building program. How vast this program was you may see from the fact that from December 1941 up to the peak of the war, more than a quarter of a million building units with attendant utilities were erected throughout the area at an expenditure of nearly $300,000,000.

*"As I review the achievements of the Utilities Wartime Aid Program, I cannot help but feel that the men behind it were motivated by the same sense of duty that inspired our soldiers. There must have been that basic sense of duty, otherwise the program would have failed.* * *

*"Picture the vast New England Army camps during the training days. Thousands of hard working sweating soldiers, trying to learn in all too short a time the grim business of war. Picture the cold New England winters with training programs going full blast because a savage enemy awaited us on all sides. Picture what could have happened if a failure of utilities took place during those days. Delays in getting our men into fighting trim, in getting them on the way to the battlefronts could have caused untold loss of life and could have delayed the ending of the war by many months."*

As I review the achievements of the Utilities Wartime Aid Program, I cannot help but feel that the men behind it were motivated by the same sense of duty that inspired our soldiers. There must have been that basic sense of duty, otherwise the program would have failed. It seems to me that you men kept alive to the last that spark of genius I spoke of earlier, that all of you must have had that extra effort, that extra patience. It seems to me that you must have realized, even in the most trying days, that while the tides of the ocean always go out, so do they always come back. This time the tides of war rushed out and it seemed they never would come back. But they did, and on the crests of their returning waves came the victory. And all of you men shared in that victory.

Picture the vast New England Army camps during the training days. Thousands of hard working sweating soldiers, trying to learn in all too short a time the grim business of war. Picture the cold New England winters with training programs going full blast because a savage enemy awaited us on all sides. Picture what could have happened if a failure of utilities took place during those days. Delays in getting our men into fighting trim, in getting them on the way to the battlefronts could have caused untold loss of life and could have delayed the ending of the war by many months.

And so I feel that this group was motivated by a sense of duty equally as strong as that of one of my sergeants on Bougainville. During combat he had located the definite position of a cleverly concealed Jap machine gun, taking a terrible toll of life from an adjacent unit that was unable to locate the resist-

ance. The attack was about to bog down. Realizing the situation, this sergeant fearlessly exposed himself and crossed a fire-swept zone to a supporting tank. Riding exposed on top of the tank, the only position from which he could see, he guided the vehicle through a withering fire against the hostile machine gun position. En route one of his eyes was shot out by enemy fire, but he did not falter. Just as the tank destroyed the hostile emplacement by point-blank gun-fire, the sergeant was struck again, this time through the chest, and was knocked senseless from the tank. He survived his wounds and today wears the highest decoration for valor that this nation can bestow.

I could cite you many other incidents of similar vein. I cite this one because I know that minus the shot and shell and bombs, every soldier had behind him on the homefront upwards of 10 men who made it possible for him to actually contact the enemy. In the field of utilities there were heroes equally as valiant as the sergeant I have just told you about. Through the bitter winters of New England, when icy winds howled around our desperately precious training camps, when swiftly formed sleet and ice storms threatened to destroy power lines and disrupt communication—and often did—there, ever ready for any emergency, were the utility men.

Even their ranks were not spared from death, for during the hurricane of 1944, which severely struck Cape Cod, four men gave their lives that service to Camp Edwards, then our largest installation, could be restored first. During that emergency, utilities men, line crews and other specialized groups came to New England from as far as the midwest. They labored day and night without rest. They gave every ounce of strength and devotion that the service might be restored. Yes, indeed, the utilities men of the nation also have their heroes who gave their lives that the war might be won.

And so I say to you that the Army is proud of what you did. I say to you that you have been the true bringers of light to a world threatened with total darkness, that you have been the bringers of power to a nation threatened with fatal weakness. You never faltered in your task. Without your unswerving devotion, I say to you again, we could not have won the war when we did. You, too, helped hold the torch of freedom high, and I am glad that I was chosen to present you these certificates of appreciation from a grateful government.

# Army and Navy Honor Utilities For War-Time Services

HONORS for those utility companies and executives who rendered outstanding services to the armed forces during the war are being extended throughout the country, in a series of regional presentations of Certificates of Award, sponsored by the War and Navy Departments.

The Army, "to express its appreciation for patriotic service in positions of true and responsibility," is presenting certificates to utility executives who served as regional and post coordinators of the Utilities War-time Aid Program. These executives assisted in solving technical, operating and maintenance problems on military posts.

Daniel A. Sullivan, of the Commonwealth Edison Company, Chicago, Ill., served as National Coordinator of the Program, while on "loan" to the government.

The Navy is presenting scrolls to utility companies for "Meritorious Service and Outstanding Performance," in meeting all war-time demands for power swiftly and efficiently, training men to operate the power plants of naval vessels, making studies of the power requirements of naval bases, and other forms of cooperation.

### Army Awards in East

Executives of utility companies in the Army's Second Service Command were honored in ceremonies in New York City, April 15. Those receiving awards were:

Buffalo Niagara Electric Corp.—Thomas J. Brosnan, J. H. Mileyer.

Public Service Electric & Gas Co.—George E. Dean, Carlton L. Dudley, Walter D. Eldridge, W. A. Guess, J. Ralph Hanford, George P. Simmen, Stanley Wilcox.

Consolidated Edison Co.—J. E. B. Stuart, James J. Kiernan.

Westchester Lighting Co.—E. H. Carr.

City of Dover, N. J., Municipal Plant—George Collins.

Long Island Lighting Co.—H. J. DeBaun.

Atlantic City Electric Co.—William DeLong, B. L. England.

Central New York Power Co.—G. B. Freer, C. M. Taylor, Clark Terry, J. L. Welch.

New York State Electric & Gas Corp.—L. P. Fries, R. C. Smith, Dean W. Taylor.

New York Power & Light Co.—Wesley J. Gilson.

Patchogue Electric Light Co.—R. R. Hawkins.

Delaware Power & Light Co.—Thomas Hooker.

New Jersey Power & Light Co.—P. Powers Kinnamon.

Rochester Gas & Electric Corp.—Ivar Lundgaard.

Jersey Central Power & Light Co.—R. P. MacGalliard, John McDonnell, Wynn C. Rose.

Staten Island Edison Corp.—J. H. MacNeal, Gilbert Pearsall.

Lewes (Del.) Board of Public Works—C. C. Marshall.

Millville Electric Light Co.—H. H. Melvin.

Rockland Light & Power Co.—L. E. Merrow.

### First Service Command Awards

Awards made in New England, to utility executives in the First Service Command area, by the Army, are:

Boston Edison Co.—John T. Ward, Daniel Ricker, John F. Maxwell, Everett G. Stebbins, Donald H. Hathaway, St. George T. Arnold.

Lynn Gas & Electric Co.—Harold E. Ayer.

New England Power Co.—Kenneth

W. Landry, John W. Keeney, Harry B. Stearns.

New Bedford Gas & Edison Light Co.—Walton S. Fenstermacher, Frederick A. Hubbard.

Provincetown Light & Power Co.—William F. Gilman.

New England Power Service Co.—Winfred D. Wilkinson, Wendell C. Phillips, Herbert E. Gfroever.

Western Massachusetts Electric Co.—Leonard J. Presson.

Cape & Vineyard Electric Co.—John E. McMaster.

Suburban Gas & Electric Co.—Alfred E. Gardella, Charles H. Deery.

Holyoke Water Power Co.—Robert E. Barrett, Jr.

Green Mountain Power Corp.—Ralph N. Hill, Aldus S. Trobridge.

Casco Bay Light & Water Co.—Herman Burgi.

Central Maine Power Co.—John L. Collins, Everett H. Carr.

Bangor Hydro-Electric Co.—Robert N. Haskell.

Narragansett Electric Co.—Charles P. Lazarek, Cyril R. Broadhead.

Newport Electric Corp.—James J. Haggerty.

New Hampshire Gas & Electric Co.—Warren H. Allen.

Public Service Co. of New Hampshire—Avery R. Schiller.

New England Gas & Electric Assn.—Edward H. Steele.

Central Massachusetts Electric Co.—John W. Gale.

Gardner Electric Co.—William R. McKeogh.

Long Island Lighting Co.—Samuel E. Bowler.

Kittery Electric Light Co.—William F. Tilton.

Hudson Light & Power Dept.—Thomas A. Walsh.

Fishers Island Electric Corp.—Henry L. Ferguson.

Houlton Water Co.—J. Norman Mullen.

Maine Public Service Co.—Milton S. Blackwell.

Chicopee Electric Light Dept.—Roy P. Benedict.

Taunton Municipal Plant—Chester F. Buckley.

Town of Hull Electric Light Dept.—Andrew F. Pope.

Hartford Electric Light Co.—John R. Donohue.

Public Electric Light Co.—Algot W. Peterson.

United Illuminating Co.—Charles A. Williams.

Connecticut Light & Power Co.—Walter R. Schwabe, Abner C. Bristol, Gerald H. Davis.

### Army Awards in Southeast

At the annual meeting of the Southeastern Electric Exchange held at Gulfport, Miss., April 24-26, Army awards were presented to:

Alabama Power Co.—J. M. Barry, R. M. Grogan, L. C. Flournoy, D. R. Allen, M. A. Lamb, R. M. Bishop, J. N. Nelms, R. A. Crump, Jr., E. R. Commander, H. E. Forbes, F. S. Keeler.

Birmingham Electric Co.—W. M. Rogers, C. S. Thorn, H. Roberts.

Florida Power Corp.—A. W. Higgins, W. M. Pickett, A. V. Benson, Roy Hicks.

Florida Power & Light Co.—McGregor Smith, P. J. Carlin, C. H. Summers, E. W. Smith, Charles Senior, H. N. Fairbanks, R. D. Hill, C. A. Byrd, R. F. Lewis, N. H. Bollinger, P. B. Huguenin, R. S. Chandler.

Florida Public Utilities Co.—F. E. Neeley, J. A. F. Smith.

Gulf Power Co.—L. C. Parks, R. L. Pulley, J. R. Youd, D. R. Hinton, G. M. Doyal.

Tampa Electric Co.—Wayne Warfield.

Georgia Power Co.—W. E. Mitchell, C. B. McManus, Edwin M. Clapp, Robert Edmond, Roy T. Porter, Michael H. Hummel, Harry B. Moore, John F. Pennington, William L. Westbrook, Charles W. Roberts, Harry M. Oldham.

Georgia Power & Light Co.—J. F. Bailey, Clarence W. Warner.

Savannah Electric & Power Co.—C. C. Curtis, James G. Brown, James E. Averett.

Gulf States Utilities Co.—H. C. Leonard.

Louisiana Power & Light Co.—W. O. Turner.

New Orleans Public Service Inc.—H. E. Meade.

Mississippi Power Co.—L. P. Sweatt, W. J. Carr, R. E. Weatherley, R. Field, W. E. Toner, J. S. Hester.

Mississippi Power & Light Co.—Rex I. Brown, C. M. Brough, H. B. McGehee, B. F. Rose, F. Plummer, R. C. Johnson, E. J. Lenz.

Carolina Power & Light Co.—L. V. Sutton, R. H. Reynolds, W. R. Doar.

Duke Power Co.—O. J. Miller.

Tide Water Power Co.—W. W. Bell, A. E. Jones.

South Carolina Electric & Gas Co.—N. H. Coit, J. F. Rader.

South Carolina Power Co.—E. L. Godshalk, T. A. Busby.

Virginia Electric & Power Co.—Jack G. Holtzclaw, E. S. Fitz, T. J. Peck, W. F. Nimmo, R. C. Daffron, S. H. Fletcher, W. J. Blake, O. V. Sessoms, C. A. Trischman.

Northern Virginia Power Co.—R. Paul Smith, C. C. Moler.

### Navy Awards to Utility Companies

At the same meeting, awards by the Navy were also made to the following companies:

Alabama Power Co., Birmingham Electric Co., Florida Power Corp., Florida Power & Light Co., Florida Public Utilities Co., Gulf Power Co., Tampa Electric Co., Georgia Power Co., Georgia Power & Light Co., Savannah Electric & Power Co., Gulf States Utilities Co., Louisiana Power & Light Co., Louisiana Public Utilities Co., New Orleans Public Service, Inc., Mississippi Power Co., Mississippi Power & Light Co., Carolina Power & Light Co., Nantahala Power & Light Co., Tide Water Power Co., South Carolina Electric & Gas Co., South Carolina Power Co., Kingsport Utilities Inc., Knoxville Power Co., Appalachian Electric Power Co., Eastern Shore Public Service Co., Northern Virginia Power Co., Virginia Electric & Power Co.

### Detroit Edison Receives Award

On April 10, Detroit Edison Co. received its scroll from the Navy, in recognition of the company's accomplishments in "Meeting all war-time demands swiftly and efficiently, while continuing to supply the greatly increased population with essential service." Rear Admiral H. G. Taylor presented the award to President James W. Parker.

"I can assure you that we found the utilities companies most cooperative," Admiral Taylor said. "In many instances, they made large investments at their own expense for the construction of facilities to serve the new stations, doing this in advance of the execution of power contracts, so that power would be available always whenever it was required."

### Navy Honors New England Companies

Twenty-three New England utilities received certificates at Boston on April 11. They are:

Boston Edison Co., Lynn Gas & Electric Co., New England Power Co., New Bedford Gas & Edison Light Co., Provincetown Light & Power Co., Western Massachusetts Electric Co., Cape & Vineyard Electric Co., Suburban Gas & Electric Co., Holyoke Water Power Co., Green Mountain Power Corp., Casco Bay Light & Water Co., Central Maine Power Co., Bangor Hydro-Electric Co., Narragansett Electric Co., Newport Electric Corp., New Hampshire Gas & Electric Co., Public Service Co. of New Hampshire, Boston Consolidated Gas Co., Quincy Electric Light & Power Co., Weymouth Light & Power Co., Hingham Municipal Electric Light Dept., and Nantucket Gas & Electric Co.

### Admiral Praises Utilities

At New York City, April 16, in awarding certificates to utilities in the Third Naval District, Rear Admiral Monroe Kelly said, "The war would have lasted many months longer if it had not been for the cooperation of electric utilities."

Certificates were presented to:

Delaware Power & Light Co., Pennsylvania Power & Light Co., New York Power & Light Co., Hartford Electric Light Co., Connecticut Power Co., Metropolitan Edison Co., Staten Island Edison Corp., Edison Light & Power Co., Pennsylvania Power Co., Electrical World, Consolidated Edison Co., Atlantic City Electric Co., United Illuminating Co., Central Hudson Gas & Electric Corp., Buffalo Niagara Electric Corp., Public Service Electric & Gas Co., Fishers Island Electric Corp., Philadelphia Electric Co., Duquesne Light Co., Jersey Central Power & Light Co., Connecticut Power & Light Co., Central New York Power Co., West Penn Power Co., Long Island Lighting Co., New Jersey Power & Light Co., Pennsylvania Electric Co., Rochester Gas & Electric Corp., New York State Electric & Gas Corp.

### Midwest Utilities Receive Awards

Utility companies in the Army Seventh Service Command, and Naval Area No. 5, received citations in ceremonies in St. Louis, on May 14. Major General W. G. Livesay, commanding the Seventh Service Command, and Rear Admiral W. H. Smith, of the Navy Bureau of Yards and Docks, made the awards.

Navy citations were given to the following companies:

Central Kansas Power Co., Garden City Irrigation & Power Co., Interstate Power Co., Iowa Power and Light Co., Iowa Southern Utilities Co., Kansas City Power and Light Co., Kansas Electric Power Co., Kansas Gas and Electric Co., The Kansas Power Co., Western Light and Telephone Co., Kansas Power and Light Co., Minnesota Power and Light Co., Missouri Public Service Co., Missouri Utilities Co., Nebraska Power Co., Northern States Power Co., Northwestern Public Service Co., Saint Joseph Light, Heat & Power Co., Sioux City Gas and Electric Co., Union Electric Co. of Missouri, Black Hills Power and Light Co., Empire District Electric Co., and Minnesota Utilities Co.

The Army citations to individuals of these companies were accepted for them by company representatives present at the ceremony.

Among the speakers were Milton M. Kinsey, President, Board of Public Service, City of St. Louis, and H. S. Bennion, Vice President and Managing Director of the Edison Electric Institute, who responded for the electric companies to the addresses made by Gen. Livesay and Adm. Smith.

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## International Conference on High Tension Systems Schedules Summer Meeting in Paris

THE International Conference on Large Electric High-Tension Systems, or Conference Internationale des Grands Reseaux Electriques—known throughout the electrical world as C.I.G.R.E.—will hold its first post-war congress session in Paris, France, June 27th to July 6th. 100 technical papers will be presented, 10 of which are of U. S. authorship.

C.I.G.R.E. sessions and activities are unique in that they are devoted exclusively to the design, construction and operation of high-tension electric systems. Established in 1921 as a permanent international association with headquarters in Paris, the purposes of the organization are to provide an international exchange of engineering information on high-tension systems, including all questions relating to the generation, transmission and distribution of electric power.

Biennial sessions were held in Paris, at which delegates from all participating countries presented and discussed technical papers, and international technical committees appointed by C.I.G.R.E. presented reports on interim studies of specific subjects. The 1946 congress will be the first since 1939.

Each country participating in C.I.G.R.E. appoints a National Committee, which enrolls memberships, assigns and reviews papers for presentation at the sessions, and appoints members to the international technical committees. The U. S. National Committee is headed by Frederic Attwood, Vice Pres., Ohio Brass Co., as Chairman, Vice Chairman is Dr. John C. Parker, Vice Pres., Consolidated Edison Co., and the Secretary-Treasurer, I. W. Gross, Research Engineer, American Gas & Electric Service Corp.

Among the members of the National Committee are Philip Sporn, Executive Vice Pres., American Gas & Electric Service Corp.; M. S. Oldacre, Staff Engineer, Commonwealth Edison Co.; Stanley Stokes, Chief Engineer, Union Electric Co. of Missouri; Walker L. Cisler, Chief Engineer of Power Plants, Detroit Edison Co.; H. J. Scholz, Supervising Engineer, The Commonwealth & Southern Corp. and H. L. Melvin, Chief Consulting Engineer, Ebasco Services, Inc.

The Edison Electric Institute is a principal collective member of the U. S. National Committee, and is underwriting a substantial part of its work.

According to Dr. Parker, Committee Vice Chairman, "The wide scope of C.I.G.R.E.'s work, unifying all the elements entering into network development, including such things as circuit breakers, line circuits, electronic apparatus and inductive coordination give the organization a unique place in the technical field, while at the same time serving as a working basis for international understandings arising from the cooperation of individuals and groups."

# National Contributions to Local Selling

By George W. Ousler
*Vice-President, Duquesne Light Company*

Presented by the Conference Chairman, Annual Sales Conference, Edison Electric Institute, Chicago, April 2-4

BEFORE I present our guest speakers, I would like to make a few observations relative to the intensive selling job which is facing the electrical industry, and to the activities of the Commercial Division of E.E.I. as an aid to your local sales plans.

Prior to V-J Day, most of us in the utility industry prepared local postwar plans for active selling after the war. However, at that time I think there was the general impression that, at least for a short period after the war, the major problem would be to fill orders, and during that short period not too much selling would be required. Equipment and appliances would be scarce, the purchasing power of our customers would be large and the major problem would be to get material and equipment.

To a certain degree that condition still exists. On the other hand, most of us didn't anticipate the conditions which arose subsequent to V-J Day, and which have only cleared up to some extent during the last few weeks. Strikes have occurred all over the nation, causing delay in the production of steel, automobiles, electrical equipment and appliances, and many other things; but probably worse than that, they have kept many people out of work for long periods—not only eliminating weekly earnings but probably in a great many cases depleting savings. It is my opinion that these conditions will have a detrimental effect on future purchasing power and add to the necessity of even more intensive selling in the electrical industry if we are to get a fair share of the customer's dollar. Manufacturing of items will not be difficult—distributing and selling these goods will be the major job.

### Contributions of Commercial Dept.

What is the Commercial Division of E.E.I. contributing to member companies to aid them in planning and carrying out their local sales activity? My close association with the Commercial Division during the last two years has emphasized to me the important part that it can and does play in the national selling picture. I would like to expand on this point for a few moments.

Two years ago we rearranged the organization of the Commercial Division so that all activities pertinent to a particular market would be under the direction of one man. This was a desirable change because the various committees of the Commercial Division at that time did not seem to be sufficiently coordinated for the most effective operation.

Harry Restofski of the West Penn Power Company, Pittsburgh, Pa., is in charge of the Residential Section.

P. M. Alden, Philadelphia Electric Company, is chairman of the Commercial Section.

Charles Snyder of the Monongahela Power Company, Fairmont, W. Va., is in charge of the Industrial Section, and

C. H. Leatham of that same company is in charge of the Rural Section.

In addition to these market sections we have two special committees: one on Wiring, under the direction of R. F. Hartenstein of the Ohio Edison Company, and the second, on Sales Training, with Davis DeBard of the Stone and Webster Service Corporation as its chairman.

### Frequent Meetings Necessary

These six men, together with our able Commercial Director, Mr. Greenwood, and myself have tried to operate the Commercial Division similar to a business organization with a department head and a staff. We have held staff meetings almost every month during the last two years, discussed the detailed operation of each Market Section and integrated all the activities so that the entire Commercial Division would be operated as a unit. We also felt that an operation of this kind would result in giving full weight to the activities of each market and nothing would be overlooked. Each section has a number of committees; altogether there are about 135 men giving their time, effort and talent to produce results which might be helpful to member companies. The Commercial Division, and the various sections which comprise it, are also cooperating with other national organizations preparing and taking part in national activities for the good of the electrical industry as a whole.

One other committee which was in existence for a short time, under the direction of Merrill Skinner, was the Planning Committee, which was eliminated about one year ago after it had served its purpose.

### Results of Two Years' Activity

Now just what has been accomplished in the last two years by the Commercial Division and what activities are now being planned?

As an example of the contributions which the Commercial Division has made available to member companies to aid in local selling plans and activities, I am going to mention just two. There are many others but these two are particularly good examples.

Under the able leadership of Merrill Skinner, the Planning Committee, which I mentioned has since been abandoned, prepared a series of reports on postwar planning. These were important because one of the prime objectives of the electric utility is load building. Seven comprehensive reports prepared by Mr. Skinner's committee were published by the E.E.I., and I presume that most of you have obtained these reports and made good use of them. The six reports are as follows:

1. Basic Planning Material for Electric Utility Companies.
2. An Appraisal of our Competition.
3. Rural Electrification.
4. Industrial Power Markets.
5. Market Problems in the Residential Field.
6. Post-war Lighting Markets.

This series of reports was publicized to member companies and could have been obtained from the E.E.I. at a cost of fifty cents for each booklet.

An extensive amount of work and talent was put into the preparation of these

booklets and many companies all over the country made excellent use of them. If some of you have not seen them and, therefore, did not use them, I think you missed an excellent contribution which would have aided you materially in the preparation of your post-war selling activities.

### Sales Training Course

The second important contribtuion of the Commercial Division is the Sales Training Course which is now complete and of which, I am happy to say, many companies have availed themselves. It has been highly publicized and, as you know, consists of a Basic Training Course plus four Market Courses; one for the Residential, one for the Commercial, one for the Industrial, and one for the Rural Market.

To prepare this course was a stupendous job. The Sales Training Committee, formerly under the direction of Mel Rodger, then of the Middle West Service Company, and now headed up by Davis DeBard of Stone and Webster Service Corporation, spent many hours investigating previously prepared sales training courses, decided none were to their liking, and finally concluded that a new one should be developed. After investigating many available firms, the Vocafilm Corporation of New York was finally selected. After further consideration it was also decided to prepare the course in cooperation with the National Electric Wholesalers' Association.

To be sure that every detail of the course was properly prepared, a group of utility men plus a representative of the NEWA spent, during the last six months, practically a day or two every week in New York with the Vocafilm Corporation, so that nothing would be left undone to make this course an outstanding success. The men on the committee have given of their time and talent in an unstinted fashion and deserve to be complimented very highly for their efforts. I am sure from the remarks I have already heard from those of you who have already purchased the courses that the efforts of these men have been fully rewarded by the results that have been obtained.

So much for two of the activities which have been prepared by your national organization.

Now a word or two about the activities which are in process of preparation.

In the Residential Section many subjects are being studied, too numerous to mention here; one of the most important ones, I think, is the development of a comprehensive Electric Kitchen Program, including the Electric Water Heater, an activity which will take the place of the old Modern Kitchen Bureau. These plans are progressing rather rapidly and before too long something will be developed that will be helpful to you all in promoting the electric kitchen in your various territories.

Many subjects are also under discussion in the Commercial Section. In this field lighting continues to be of paramount importance first because of steady improvement in light sources, and second because we must still look to lighting as the largest single load building opportunity in the Commercial Market. Of the many studies which are being made, I would like to mention one as an example. It has to do with the development of what is believed might well be a nation-wide program on "Planned Lighting," designed to interest local utilities in the development of an activity which will make it possible for our customers to have the advantage of the best possible lighting advice before going ahead with lighting changes. Here again we hope before too long some of these studies will reach the final stage so that further activities can be contributed to member companies.

The Industrial Section will soon have four new and revised Sections to add to the Power Sales Manual, covering Motors and Controls, Electric Heat Treating, Industrial Lighting and Industrial Cooking and Baking. This Section has under way at the present time a study covering the field of electric transportation, which will attempt to determine the importance to the industry of this class of business and will study ways and means of holding and obtaining new business in this field. I am sure that when these subjects are completed and in the hands of member companies they will be most helpful.

### Rural Sales to be Stressed

In the Rural Section many items are under discussion. Obviously the first phase of farm electrification was building lines to take service to farm people and this is approaching the stage where for the most part completion is in sight. The business-managed utility companies have done an excellent job in the past years and are continuing even more aggressively the extension of service to the rural areas. However, the next important phase of our job is utilization on the farm. The 1946 program of the Rural Section is concerning itself primarily with this phase of the program. I am sure that we can look to the Rural Section for much information and help so that we can assist the rural and farm customers in their utilization problems.

Incidentally, Roy W. Godley, formerly of the Monongahela Power Company, West Virginia, has just been added to the staff of the E.E.I. as Rural Service Manager. I am sure that this will strengthen the work of the Rural Section because he has had long years of experience in extension work, in cooperative relations, and is very familiar with problems of rural electric service and utilization.

Our Wiring Section is now busy bringing up-to-date various wiring handbooks which should be available within a very short time.

I mention these activities that are now being worked on to emphasize the important national contributions which are now in the making as aids to your local selling plans. New problems are continually arising. Plans and activities will always have to be developed on a national basis to aid in the solution of these problems.

### Talent Needed on Committees

One last point before closing. The Commercial Division of E.E.I. is in a position to develop activities on a nation-wide basis which cannot be economically developed on the local level. One of the best examples of this is the recent Sales Training Course which has just been produced. However, these national activities are and will be successful only insofar as you make available to the various committees of the Commercial Division the best talent in your organization.

In my experience as Chairman of the Commercial Division I have found that most companies are willing to allow some of their best men to serve on committees, but, on the other hand, I have been disappointed in the reaction of a few companies who refuse for one reason or another to allow their personnel to take an active part in this committee work. I realize that we are all busy. But national industry activities are essential and very helpful locally. Men who serve on these committees gain much for themselves and for the companies which they represent. Furthermore, it is too much to expect that men who have served on committees for a few years continue this work indefinitely. Therefore, new members are

(*Continued on page* 142)

# Saturation or Growth — It's Up to You

**By Robert G. Ely**
*Public Service Electric & Gas Company*

Presented before the Annual Sales Conference, Edison Electric Institute, Chicago, April 2-4th.

A YEAR or two ago when the war was at its height and our respective companies were supplying every available kilowatt and some we were borrowing over interconnection lines to help turn out war material, some few of us were trying to appraise postwar industrial power markets.

Forecasts were made of a substantial drop in industrial load at the war's end, with a subsequent revival in sales by 1950 to the '39—'40 or perhaps the '41 level if we were particularly optimistic. Clouded by the tremendous increase in load with energy use at high load factor for war purposes, these forecasts created to some a picture of rapidly approaching saturation of our industrial markets—a condition which could, as a consequence, create ultimately a similar outlook for our commercial and residential sales.

Since those forecasts were made, we have had six or seven months experience during the reconversion or postwar period.

We have had time to measure the extent of load losses through the cancellation of war contracts. The net effect on both sales and revenue was generally less than had been anticipated.

### Effects of Reconversion

We have had a glimpse of the plans of industry.

Just what do these plans mean to us? Of what are they indicative? There are several things—

First, they indicate that industry, all industry, is endeavoring to develop new processes, new products, and establish new plants or expanded manufacturing facilities so that they can compete in the postwar markets.

Second, that although increased load does not necessarily mean increased sales and peacetime load factors will be less than those experienced in recent years, a continuation of the present rate of growth of industrial business will make it *possible* to exceed previous industrial sales records within a relatively few years.

Third, according to the inter-relation of our industrial, commercial, and residential business as analyzed in the January 1946 issue of Load by Ralph Wagner, we can expect increased residential and commercial business as a result of this industrial activity.

And last, there is a challenge to our industry, to the power sales organizations, and power salesmen of our companies to aid and assist in the promotion of this industrial reconversion, expansion and development.

### New Uses of Electricity

This industry has always been fortunate in its productive research, its intelligent field application work and interchange of information on new uses of electricity. There are three basic purposes for which electricity is used in industry:

Motor drives
Heating
Lighting

There are also other uses such as controls, communication, metering, air cleaning and by-product precipitation, and many others which do not use energy in such great quantity but are essential to industrial processes and plant services.

During the last few years there has been little progress in motor design and application which would, in itself, greatly increase the market for power.

In the field of heating, perhaps the most outstanding development has been the dielectric heating of non-conductive materials with radio frequency. Utilizing frequencies in excess of the broadcast band from 1.5 to 200 megacycles, electric energy heats quickly and uniformly by molecular friction, such materials as wood, plastics, rubber, tobacco, cereals, textiles and foods. The use of electricity for this purpose is rapidly supplanting other heat sources.

Dielectric heating is now essential in the preheating of plastic preforms. It is used to set the twist in rayon cord and for drying rayon cakes. It is used for curing rubber, gluing wood, drying penicillin and killing larvae in vitamins, cereals, and tobacco. Many other applications are still in the research stage.

Prior to the development of dielectric heating, steam was the most important process heating source for these materials and large quantities were used. As a result the power supply to these industries was subject to severe steam competition through heat balance power generation. Dielectric heating of these materials will decrease steam use and cut down competition from these plants.

Induction heating has gained widespread use during the war period for preheating, shrink fits, annealing, soldering, brazing and hardening. Heaters of different types are now available for a full range of useful frequencies, from 25 or 60 cycles up to as high as 10 or 15 megacycles. These heaters have been designed where possible to fit right into production lines and cut down processing time. The high speed tinplating installation, with which you may be familiar, has been the outstanding application in this field. Advances have been made in metal melting with induction heat and such equipment is well established in the brass and precious metals field.

### Arc Furnace Use Increases

Electric arc furnaces are finding more and more use in the steel industry for the production of alloy steels. As the percentage of alloy steel to total steel production grows, markets for electric power in the industry will increase. Alloy steels are produced more uniformly, more quickly, and with greater overall economy in electric arc furnaces.

A comparative newcomer in the field of electric heating is the infrared lamp heat source. Getting its start in the automobile industry on the drying of paint finishes, this radiant heater has cut down the time required for drying finishes on countless metal products. It has also found other applications of equal importance, among which are the dehydration of foodstuffs, and drying in connection with automatic jiggering or forming in the pottery industry. In this industry it has also been successful in reducing the drying time of bath tubs from 14 days to 12 hours and cutting overall production time from 21 days

to 7 days. As a result management is striving to place the production of allied products on the same schedule through increased use of infrared lamps.

Recently publicized in Electrified Industry as the greatest "tannery development in twenty-five years" was the automatic spraying of finishes and infrared drying which changed an eight-hour hand job into a two-minute automatic one.

Infrared is used successfully for carbonizing foreign matter in woolen cloth, killing wheat germs, in the bonding of cork bodies to their tops, in heating for shrink fits and many other purposes.

One application in the textile field which is now at the research stage will involve the use of more than 10,000 kilowatts of infrared lamps in one plant. The use of the lamps will eliminate the need of large boilers, remove the possibility of heat balance power generation, and the saving in fixed charges would appear to make the use of the infrared heat source economical.

### Progress in Welding

In the field of welding, there has also been considerable progress. Welding has become a production tool, essential in the manufacture of most metal products because of the time and material saved. The development of the heliarc process for welding magnesium was a great step forward and has broadened the market for electricity in its fabrication.

In the industrial lighting field, there was much progress during the war in the installation of fluorescent lamps to give high standards of illumination. These standards are not being lowered on the conversion of these plants to peacetime operation. A new development in the field is the three kilowatt air cooled mercury vapor lamp for high bay lighting which does an excellent job. At the present time even larger sizes are in contemplation.

The sale of high intensity lighting installations together with such other plant services as air conditioning, refrigeration, and compressed air systems did much to stabilize industrial loads and decrease the loss of business on cancellation of war contracts. In the future, lighting loads will also act as a sales stabilizer during depression periods.

There are other electric applications of importance which include the electron microscope, X-Rays for study of castings, electrostatic precipitation for air cleaning and by-product recovery, and electrostatic paint spraying and detearing. We have a wider acceptance of year around air conditioning in tobacco, textile, printing, and engraving plants and in all factories engaged in precision work.

We also have a growing use of refrigeration in industrial processes for the storage of aluminum rivets, sheets and parts, for instruments, equipment and material testing, for expansion fits, optical lens processing, cooling cutting oils and grinding compounds, for the stabilization of metals and oil refinery processes.

These are a few of the new uses of electricity and the expanded markets for some of the old ones. The picture would not be complete without a brief consideration of some of the new products and new developments which will further expand our markets.

Research work in atomic energy, expansion in the markets for synthetic rubber, powdered metal products, plastics, pharmaceuticals, such as penicillin and streptomycin, frozen foods, television equipment and many others, will broaden the markets for electric power. In the soap industry we have the advent of detergents and in the textile industry, quick-setting dyes which will have a bearing on heat balance power generation in these industries.

We have the expansion of the prefabricated housing industry and whereas little power was used in the supply of materials for house construction on the lot, considerable quantities will be used in their manufacture on assembly lines.

### Market Surveys

When we review these new uses of electricity in industry and a few of the new products that industry will make, we are again reassured as to the *possibilities* of long term growth of our industrial sales. Reassurance, however, is not enough. We have to plan, and plan carefully, to sell these markets. There is one first step which we should all take in order to establish an intelligent sales program within our respective territories and that is the preparation of a market survey. Besides knowing what you have to sell, you have to know where you are going to sell it.

Many of you may have heard of the splendid talk—"Let's Turn On The Electrical Switches of Peace"—given by Mr. Francis McQuillin before the South Eastern Electric Exchange. Mr. McQuillin presented a market survey made by his company. Typical of an analysis which can readily be made for your territories, prospective load additions are listed for twenty-two industry classifications covering additional loads for the balance of 1945, 1946, '47, '48 and later and totaling 254,011 Kva.

These prospects are also reclassified into five major sources of new business—New Industries, Conversion (from other forms of energy to electric service), Mechanization and Expansion, Electric Heat, Lighting.

This same survey was further broken down by load additions in each of these five classifications for each of the succeeding years.

These prospective load additions totalling 254,011 Kva represent the possible increase by a large percentage in the industrial load already on the system.

This survey is not visionary, nor does it represent a whim of management. It is of practical help in estimating loading of generators and distribution systems. It is of practical use in sales management. It is of practical use in guiding sales training and in sales planning by industrial power salesmen in the field.

You may wonder how Mr. McQuillin and his men have been able to locate so much new business in their territory. Have you looked over yours?

### Sales Organization and Programs

The results of a market survey for a particular territory will generally dictate the type of sales organization and sales program which can be developed. In general, however, there are certain basic precepts which must be followed in forming, adding to and retraining a power sales organization.

Section IV—Industrial Power Markets—Report of the Commercial Planning Committee of the E. E. I. gave an outline of some of the qualifications and duties of the power salesman. It also indicated the knowledge which power salesmen should acquire, the tools necessary to do his job, together with the responsibilities of management essential in the creation of a hard hitting sales organization.

Most important of these responsibilities is adequate training. You are all familiar with the Basic Sales Training Courses for salesmen in all branches of the industry. Many of you may have heard at the Power Conference here yesterday, Mr. Sherman Knapp's discussion of the training program being developed for specialized power sales work. Mr. Knapp and the other members of his Sales Training Committee of the Industrial Section are to be complimented on the preparation of a good training course based on the Power Sales Manual and tied in in sales principles with the Basic Sales Course.

It is interesting to note that his committee placed special emphasis in their training course squarely on two of the three basic objectives in Utility Power Marketing as covered in the Planning Report—quote—

"1—The sale of power to all industrial plants in the area with emphasis on the full electrification of each plant and the improvement of the competitive position of each customer within its own industry."

Note that last phrase—"Improvement of the competitive position of each customer within its own industry." Therein lies the heart of real customer's service. Our customers only have a passing interest in their costs of electric service, their real interest lying in the work which that service will accomplish in speeding production and improving the quality of their product.

Our power salesmen must be trained thoroughly in the analysis of customers' production methods if we are to be successful in securing wide application of the new uses of electricity in industry.

The second objective of which they took note was, quote:—"The retention as customers in the face of competition from other sources of power and heat, of all industrial customers now using central station service."

The first sections of the handbook supplement to the leader's guide on Power Sales and the Power Salesman will be devoted to the analysis of customers' production methods and holding business in face of competition.

### Competition

Before we get away from the subject of competition, let's summarize the situation as it appears today. Competition will be severe, but there are indications that it will be no more serious than before the war. For all types of new competitive generating equipment, prices are at least equal to or higher than they were before the war. Improved production methods have not as yet offset rising material and labor costs for their manufacture. This condition may be of shorter duration than it is possible to foresee, however, as manufacturers will be anxious to load up their production facilities and competitive price reduction may result.

Used equipment will offer our industry some problem when dealers in such equipment are able to place salesmen in the field.

Competition with oil engine plants will continue to be a problem in salesmanship. Have you given your customers good service in the past? Have you stressed the collateral advantages of your service? Have you helped your customers improve their manufacturing methods and lower production costs? Have you called on them regularly? If so, you will have better than an even chance of holding your customers.

The third power marketing objective, quote: "The sound industrial development of the areas served" will also be the subject for a section in the handbook supplement to be available shortly. Though essential to a well rounded training program, the location of new industry would seem to be receiving adequate attention at the present time in all parts of the country.

### Well Rounded Program Needed

The preparation of a well rounded sales program for each territory would seem essential to sustain the growth of industrial load. This is particularly true because in addition to knowing what you have to sell, where you are going to sell it, and training the man to do the job, you have to know how to get the best results.

Your own sales programs will vary with conditions in your respective territories. However, there are certain elements which would seem essential to any such program:

1. Regular calls on all industrial customers to uncover sales leads and guard against competition.
2. Proper assignment of customers so that power salesmen will have sufficient time available for work within their customers' plants.
3. Emphasis on sales activity in connection with your medium sized and smaller customers—marginal producers—that have little engineering assistance. Sales of new electric power applications and new methods to them will pay greater dividends in the long run.
4. Immediate concentration of sales efforts on the remaining private power plants in your territory. Age of equipment, deferred maintenance, increased labor and maintenance costs make the present a very opportune time to secure this business.
5. Continuous manufacturer, wholesaler, contractor, and industry trade association cooperation to keep sales forces abreast of changes in equipment, new uses of electricity, and new developments within all industry.

It has been possible in the time allotted to touch only briefly on the new uses of electricity in industry and some of the new products of industry which will require electricity for their manufacture. That there are such new uses and new products is a healthy sign, for sooner or later in the life span of any industry comes the period of saturation. In many ways the time of saturation is dependent upon the salesmen of the industry. If we in this industry were content to relax our sales efforts, if we were content to point back to the splendid job done during the war and feel that was the ultimate in service to industrial customers, then we would be fast approaching a point, not of saturation, but stagnation.

The future of industrial sales can be a future of sustained growth if we will survey our markets, develop our sales organizations, prepare sales programs and go out and sell.

We are in a dynamic era and need dynamic sales policies—it's up to you.

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## History of Electrical Development

"A CHRONOLOGICAL History of Electrical Development" ($2, National Electrical Manufacturers Association, 155 E. 44th St., New York, N. Y.) is a story, by dates, of electricity and the vast assortment of devices and equipment created by the electrical manufacturing industry to utilize it; of a long line of great men of science, their initiative, theories, research, experiments and discoveries—and their contributions to the present age of electricity, electronics and atomic energy.

Designed as a refrence work for editors, writers, commentators, libraries and schools, as well as for industry, the chronology begins with the discovery of electricity in 600 B.C. and parades in 106 pages an extensive collection of background material, facts and "firsts."

While the book touches on such modern electrical applications as television, fluorescent and ultra-violet light, the giant turbo-generator and the electron microanalyzer for atomic research, its accent is on the earlyday men of science and industry and the steps they took to make electrical living possible.

Other contributing factors are recorded, among them electrical expositions and congresses, the birth of electrical publications, engineering and trade associations, societies, foundations and institutes.

# A Customer Service Policy

## *For a Hypothetical New Public Utility Organization*

By P. E. Ewers

*Subcommittee Chairman, Joint AGA-EEI Customer Relations Committee*

Presented at the AGA-EEI National Accounting Conference, Cincinnati, Ohio, April 1-3, 1946

LET us suppose that we are members of a *new* public utility organization just starting in business. We have been given the responsibility of formulating a customer service policy comprehensive enough to cover all phases of our business which may directly affect customers from the time they first request our service until they finally leave our lines.

At the outset we will recognize that any enterprise, to be long successful, must have an objective . . . a goal toward which all efforts will be focused. History shows that most prosperous businesses have included as a major objective, agreeable customer relations. We therefore will assume favorable public attitude to be a basic aim of our new organization.

Policies are plans designed to achieve objectives. Hence, our Customer Service Policy will be centered around those phases of the business which may influence customer attitude most directly. Emphasis will be limited to segments of the plan which country-wide utility experience dictates are especially concerning.

### Business Facilities

To develop a thriving enterprise first of all we must have the necessary business offices, equipment and personnel. Business facilities provided for customers must be measured by the yardstick of adequacy, customer's convenience and satisfaction, whether customers choose to do business with us by mail, telephone or personal call.

The location of our offices will be chosen with first consideration to accessibility by both public and private transportation. In urban areas customers will be able to park their cars conveniently and transact other ordinary business nearby. In rural and semi-rural areas, offices will be so located that telephone service is available to the customers served with not more than nominal toll charges.

Our business offices will be well lighted, cheery, neatly arranged, and clean. Personal contact areas will be located on the ground floor, near main entrances. They will please the eye, offer maximum convenience and make functional use of the service we sell. While transacting business, customers will be comfortably seated beyond the hearing range of other customers. Most people hesitate to talk freely before others. Those who do are either ill at ease or so emotionally upset they don't care who hears them. In any event, telling their troubles within earshot of other customers can accomplish little more than to spread customer dissatisfaction and make the interviewer's job much more difficult.

Telephone facilities will be adequate for all contingencies. Will our customers have a friendly feeling toward us if, when they call by telephone they get busy signals or wait several minutes before receiving attention? Remember, the customer's time is valuable, too! Good customer relations demand telephone equipment and manpower sufficient to provide promptly all necessary service around the clock, on weekdays, Sundays or holidays, and during peak periods.

Similarly, the machinery for answering customers' letters will be geared to the volume and scope of the correspondence received. The customer's letter is his representative. We would treat as utterly ridiculous any thought of telling a customer who comes to our office, "You'll have to wait a few days for attention." Yet many utilities all over the country take from three to six days or longer to answer correspondence. Ours will be answered as received, daily.

Our equipment will be so complete and adequately maintained that whatever the job, it can be accomplished with efficiency and skill. Well maintained, appropriate equipment will impress customers and equally important will merit the pride of the operating employees, inspiring the best possible work for customers. Further, this equipment always will be used with utmost consideration for others. For example, everyone will see our company's vehicles on the streets. The manner in which they are operated is as important as any other factor in molding good relations with our customers. At all times, our trucks and cars will be driven as though all drivers and all pedestrians were our customers . . . and almost invariably they will be.

Monogrammed vehicles will not be assigned to employees handling complaint or collection work. To assign identified cars to such employees might expose customers who raise questions or who are temporarily unable to pay bills to needless embarrassment. Embarrassed customers are never cooperative customers.

The best Customer Service Policy ever proposed would fail miserably in practice if administered by poorly selected employees. When one sees those in some organizations who are dealing with customers he might be reminded of the following description of a customer service employee:

"He is a person past the age of productive usefulness, a mental reject, incapable of straight-thinking, opinionated yet passive, non-committal, with eyes like a codfish, polite in contact, but unresponsive, cold, calm and damnably composed; a human petrification minus compassion or a sense of humor. Happily, he never reproduces and when he finally dies will be mourned by no one and remembered only by his creditors."

All employees selected by us for any job involving either meeting or talking to customers will be chosen because they possess the qualities needed to create favorable customer reaction. They must have the personal attributes which people like . . . be eager to serve others, affable, energetic but patient, and courteous. They will not be selected for this

type of work solely on the basis of extensive knowledge of company rules and practices . . . never, regardless of background, education or age, if their personality characteristics or attitude would cause customer irritation.

Selection will be followed by thorough and complete training, both in the mechanics of the job and the most successful methods of dealing agreeably with customers. The training program will be followed by a period during which these employees are constantly observed until supervision is fully satisfied that they can and will meet minimum job performance standards.

### Provisions for Service

The nerve center of a Customer Service Policy is in its provisions for service. One of the most successful ways to increase sales . . . an obvious goal to which all policies should point . . . is to make it easy for customers to do business with us. Though the customer's wants are many or few, complex or simple, touching on one or several phases of the company's activities, we will give him "one stop" service, whether he telephones, calls in person or writes us.

Not so long ago a lady customer stormed into the General Manager's Office of what was considered a fairly progressive organization. As she burst through the door imagine the astonishment of the G. M. as she exclaimed, "Oh! I thought this was the way uot. I came in a half hour ago with what I believed to be a very simple request but I've been directed to so many departments and asked to see so many different people that I'm now so tired waiting for attention and so utterly confused I've forgotten what I wanted."

Such a story may be labelled an exaggeration. Yet at least to a lesser degree it happens in many offices daily. Our offices will be provided with centralized groups where any customer may bring his requests by telephone or in person, regardless of number or nature, and receive prompt and complete service. No other duties will be assigned to these groups which might in any way interfere with their sole purpose . . . to make it simple and easy for customers to do business with us.

New customers will long remember the treatment received when they first apply for service. They will take with them an impression . . . good or bad . . . which will determine their attitude toward us, perhaps for years to come. We'll show these customers that we are glad to serve them. Our conversation with them will emphasize a genuine welcome. The questions we ask will be few . . . just those which are necessary to determine paying habits or ability to pay.

Old customers will be cordially received back on our lines. Even fewer questions will be asked of them . . . in fact, only those designed to establish continuity with previous accounts. We'll treat them as people we know; and we should, if we maintain proper records. We won't ask them to sign new contracts for service. Our original applications will be worded to provide for subsequent service requests at *any* address at *any* time.

Yes, and we'll connect service when requested to do so by telephone whether or not we have a signed contract. Many Utility Companies have operated for years without the formality of taking signed applications on residential accounts and their losses traceable to such arrogant disregard for legal technicalities have been nil. Let's be practical. Let's recognize that insistence on signed applications for ordinary accounts is unnecessary.

Promises kept build confidence. Commitments made by our company will be met if at all feasible. Commitments to perform the actual connection of service, for economic considerations, must be kept within reason. But ample latitude will be given responsible employees to promise work performance immediately whenever necessary. A service supplied when urgently needed can be a continuous, pleasant reminder to a customer. Likewise a service supplied only after genuine inconvenience has been caused can be a constant source of irritation.

Obviously, it is not practical to broaden every employee's knowledge and responsibilities to the point where anyone can handle to completion every conceivable request which could be made by a customer. What questions employees may or may not be qualified to answer are relatively unimportant. More important is their attitude. Certainly, they will not be expected to handle questions beyond the scope of their knowledge or experience. However, in our organization each employee will have an established avenue available to him through which all comments and requests with which he is unfamiliar will be given attention promptly. The mere existence of such a facility will do much to insure a proper attitude by all employees toward answering questions not directly related to their assigned jobs.

### Reading Meters

No single group of employees will have a broader opportunity to maintain a high degree of customer good will than our meter readers. Their major functions will be threefold—to read meters accurately, to treat customers courteously, and to evidence real respect for customers' property. A single failure in any one of these functions almost certainly will cause subsequent problems in customer relations.

High work performance standards coupled with a program of close, alert supervision will be instituted to make sure that the efforts of our meter readers will help to achieve the goal toward which our Customer Service Policy points.

We will make it distinctly advantageous to read meters accurately. "On-the-job" observations will be conducted to see that our meter readers cheerfully answer customers' questions or pass them along. We'll observe the conduct of these employees on their routes to make sure there is no "horse play," jumping of hedges or fences, walking across lawns, undue haste, or any other practice which might cause customer displeasure. Finally, periodic re-emphasis will be placed on the importance of constantly looking for opportunities to compliment customers.

### Rendering Bills

When we touch the customer's pocketbook we are playing with dynamite. It logically follows that customers are more critical of the size of their bills than any other segment of Utility service. Further, people are creatures of comparison. Judgment of values is based almost exclusively on relationships with previous experiences. Hence, rendering of customers' bills for service boils down to a question of regularity, uniformity and accuracy. By setting up as many meter reading and billing units as there are work days in a cycle, and scheduling activities accordingly, we shall maintain uniformity in consumption spans and regularity in delivery dates.

Due dates will fall on the same day of the month from cycle to cycle except for Saturdays, Sundays and holidays. If at all practical, due dates will not be advanced; always retarded. Humans resist change. While customers will

react unfavorably to any change, retarded due dates will cause less friction than those which are advanced, because retarded due dates seldom result in loss of discount.

The span between meter readings and bill delivery will be held to the barest minimum. Aside from the economic advantages, we know this practice will help customers associate their bills with de mands on the service during the periods covered, thus reducing the number of questions and complaints.

Every customer will receive a bill each cycle. When unable to gain access to the customer's meter and no usable post card reading is received, we will render a bill based on previous usage. War experience has indicated customers' willingness to accept bills based on previous usage, *in those instances where a regular reading was not possible.* The average American lives from pay-day to pay-day and we impose a needless hardship when we permit consumption to accumulate before billing. People who live on a budget tell their money where to go instead of wondering where it went. But customers are not generally budget-conscious; frequently, therefore, funds are not available to pay bills larger than usual, even if a longer than average period is covered; embarrassment results, and the Utility's prestige suffers.

Meter readings will be carefully scanned before bills are rendered, to intercept consumptions which do not conform to previous use patterns of accounts. Investigators will review such consumptions with customers, before bills are released. The psychological value of anticipating complaints is not to be minimized. Aside from curbing immediate complaints wasteful conditions will be found, explained, and corrected before *subsequent* bills are needlessly enlarged.

We plan to mail our bills rather than attempt delivery by our staff. Equities from a customer relations angle weigh heavily in favor of this decision. Postal laws are so worded that even with the permission of the owners, mail boxes may not be used for any purpose other than the receipt of United States mail. These regulations place even the most resourceful company bill deliverer at a definite disadvantage. Bills delivered in the same manner as advertising matter are often accorded the same treatment as advertising matter—and customers are left with the belief their bills were not delivered.

Every bill will be complete in itself. Regardless of the complexity of rates, one test will be applied to each bill—the average customer, with only the information shown on the bill, must be able to check our calculations.

When a customer moves from one address to another, consumption since the last regular reading date will be transferred to the customer's new account and included with the first regular bill rendered for that address. Experience points to the fact that customers appreciate this service, if such items are properly identified. It eliminates the need for paying an extra bill at a time when the customer is fully occupied with other considerations and reduces instances of misunderstanding resulting from a loss of or failure to receive a final bill from the previous address.

Scrupulous care will be combined with utilization of modern machine devices and accounting practices to insure the highest degree of accuracy obtainable in rendering all bills. Correcting an error found by a customer is understandably humiliating, but the disparaging effect of an error lingers because customers who have found bills incorrect will frequently mistrust all bills rendered thereafter.

### Inquiries and Complaints

For years many utilities have regarded complaints, inquiries and requests from customers as simply necessary evils. They seem to have overlooked entirely the fact that problems brought to them are choice opportunities to convert otherwise unhappy customers into loyal boosters. Such a viewpoint is not mere wishful thinking. Companies which have sampled customer attitude invariably have found the highest percentage of favorable comment about the utility coming from those who at sometime have presented one or more specific problems to them.

Let us then consider how customers' problems will be approached, analyzed and acted upon by our organization to build and cement friendly customer attitude. We shall recognize what all students of human behavior tell us is true. Every person we meet is, in his own mind, *the most important person in the world.* The problem he brings, regardless of its concern to us, *is his most important problem* at that moment. The customer's primary interest lies in what we *can* do for him—not what we *can't* do for him.

Our approach toward every person's problem, therefore, will be consistent with these three basic principles—we actually will treat each customer who comes to us as the most important person, we will give his story the patient, attentive ear which the most important problem would deserve, and we will shape our initial remarks to emphasize what we *can* do to solve the problem—not what we can't do. With this approach we shall sweep from our path most obstacles to a friendly, cooperative settlement of the difficulty.

With unfaltering patience *we will listen* until we have the customer's *full* story. Then, and only then, will we be in a position to determine what records are required to assist in analyzing the causes. Much depends here on the availability of primary records such as meter reading and building data. These at all times will be as close to those dealing with the public as the dials on their telephones.

Inquiries and complaints generally can be classified into two groups; those caused by our failure to make some phase of our service completely dependable, accurate or fool-proof, and those over which we have no control.

When inquiries or complaints have been caused by our direct or indirect failure appropriate adjustment will be offered cheerfully, even enthusiastically, as a matter of course. Surprisingly few complaints or inquiries will fall outside the classification of direct or indirect responsibility unless our interpretation of responsibility and control is narrow. The day has long since passed when we could tell a customer, "Failure to receive a bill does not entitle you to the discount"—and make him believe it. And if he doesn't believe it what possible sense is there in telling him, save to antagonize? We are now living in a day when a broad view of responsibility and control is essential to a high degree of customer approbation.

There was a time, not so long ago, when it was considered weak to admit an error. It was believed that the admission, even though justified, would tend to undermine confidence in the infallibility of the organization. We might agree with the latter but never with the former. That the public believes utilities considers themselves infallible is not denied by any experienced customer contact employee. He has listened too many times to repeated asser-

tions of this nature. Our policy will demonstrate that it is far better to be guilty of admitting an error for which actually we may not have been responsible, than *ever* to be justly accused of failure to acknowledge a mistake.

When in doubt as to responsibility or a course of action, we will give the customer "the break." Customers will be quick to recognize our generous decisions and will amply reward our organization in subsequent contacts both with us and with associates and friends.

There will be instances when the bald facts are so clear as to destroy all validity in a customer's claim. Here, without any effort, we could place the customer in an inescapable box. But what would we gain? Surely nothing more than a frustrated customer who would leave us vowing to get even some day. Such a customer, no doubt, was Mr. White, who recently met a friend just as he was leaving a utility office. "Who did you talk with in there?" queried White. The friend answered that he believed he had talked to a Mr. Brown. "Oh, Brown!" he exploded. "I know him. He's the fellow with the glass eye." The friend stated that he hadn't noticed that, whereupon White came back with, "Well, the next time you have to talk with him look carefully and you'll see in one eye the faintest gleam of human kindness. That's his glass eye."

No, the more certain we are of our facts the more careful we will be not to drive those facts home. Give the customer an "out." The discriminating customer will realize we have done so and will in his own mind thank us everlastingly. The others may feel that their unsound claim escaped detection, but the relief which they will experience will be quite sufficient to cause them to drop the whole subject, without rancor.

When adjustments are necessary, we will make them adequate. The good will created by being absolutely fair, by going just beyond the half-way mark, by avoiding a "one for me and not more than one for you" attitude will be worth infinitely more to us than the few extra pennies we deny ourselves. And let's not be afraid to let the customer write his own ticket. *Frequently* it will cost us less; *invariably* the customer will be completely satisfied.

If discussion by telephone or at our offices does not leave the customer with an obvious feeling of satisfaction or where the facts indicate the need for verification we will readily arrange for an inspection at the customer's premises. Those selected for this important work will have in their possession all pertinent discussion and record data and will be given ample authority to conclude the investigation in a manner thoroughly pleasing to the customer.

Whether our discussion ends in our office or at the customer's home or office we will never consider an inquiry or complaint properly closed until all of our findings have been faithfully given to the person or persons primarily concerned. It is not enough to conclude our discussion of a problem with Mrs. Customer if her husband has indicated his interest. We must be sure that he, too, is given full benefit of the facts disclosed. Satisfying one member of a household while another still has a question never settles a complaint. It merely postpones the day of reckoning.

Finally, customers who bring their problems to us, regardless of their nature, are doing us a distinct service. First, we know what they are thinking about, what they want, what they expect. This knowledge will be of immeasurable help in formulating sound plans and policies for the future. Second, rather than coming to us, if they take their troubles to neighbors, friends and others, our difficulties may be multiplied many fold for misunderstandings, rumors and small talk easily can create irreparable damage to good will. A sincere expression of appreciation to every customer who lays his difficulties before us is therefore not merely desirable, it is imperative.

### Paying Bills

No customer enjoys paying bills. Yet customers dislike to pay certain bills less than others. We are going to try to be sure that our customers dislike paying our bills less than other regular obligations.

Our offices and those of our agents will be located so that payment of our bills can and will be an activity incidental to shopping or business trips. The time between bill receipt and due date will be short enough so that bills will not be forgotten easily before the due date, yet long enough so that a special trip to the office need not be planned in order to save the discount.

Special emphasis will be placed on maintaining adequate personnel at each office, in order that payments may be taken with a minimum of time loss to customers. Yet, though we give each customer quick service, transactions will be conducted in an unhurried atmosphere, particularly pleasing to many customers who wish to conduct business at a pace set by themselves.

Each payment transaction will be individualized. We'll have none of the incidents such as that of the customer who paid his bill to a very sour looking lady teller. When he was handed his change he pushed a dollar bill back toward her saying, "I'll give you this if you'll smile." Her reply was, "Why should I smile on a job like this?" Our tellers will greet each customer with a spontaneous, sincere and friendly smile. Change will be counted out and each customer will leave our tellers with a pleasant, well enunciated, genuine "Thank you" ringing in his ears.

Minor adjustments which can be completed in a moment or two will be made to bills at tellers' enclosures. The customer who wishes to pay his bill and have an error in his address corrected, to pay only the unpaid portion of a bill which includes items outstanding at the time of issue, allowance of a discount, or any other simple, non-controversial contact will be accommodated at tellers' windows. In addition to giving quicker service, this decision was reached because customers don't like to handle their business piecemeal; they don't like to be sent from one person to another and they have a feeling that any employee in the business office should be able to handle any request they may make.

We will accept payments at net one day following the due date without the absurdity of any comment that we are granting a concession. To say the least it is awkward to defend the practice of charging the gross amount one day following the due date while admitting that a mailed payment received the same day if postmarked the day previous would be accepted at net. We'll never injure our relations with customers by being as fair to those who pay their bills in person as to those who pay by mail.

Cumulative experience has taught us not to be tricked into the belief that our outstanding arrears will be increased or decreased substantially by the degree of severity or leniency of any collection policy or system. This same experience has shown that economic conditions will

have a greater affect by far on the number and dollar value of overdue accounts. Hence, we shall commit ourselves to a collection policy which simply will insure reasonable control of arrears.

Every inducement which we can place before our customers to pay their bills without collection action will be utilized. Offering a discount for prompt payment, providing convenient bill paying facilities in every neighborhood, itemizing amounts and reading dates for arrears on current bills, will all aid in reducing the number of accounts on which actual collection action must be taken.

Recognizing that people almost universally abhor the appearance of a collector at their doors, we will precede any such activity with written reminders and where feasible, telephone calls, to induce payment. Selection of accounts to receive such treatment will be based upon age and amount of arrears together with the customer's past paying habits. But in no instance will any sticker, notice, or letter be so worded that it might be expected to cause offense or resentment, for even though we know before the written message is sent that the customer's payment habits are poor we cannot be sure of the precise cause of the current delinquency until we actually have contacted the customer.

Only accounts which justify interruption of service will find their way into the collector's hands . . . and then only when all milder forms of persuasion have failed and after the customer has been amply warned. Responsibility for the decision to interrupt service will be vested in the collector. His responsibility will be matched with the authority to postpone or alter normal action.

Threats, those gremlins of collection activity, will have no place in our policy. Little benefit will accrue from threatening to cut the customer's service when circumstances do not warrant, or from detailing all of the inconvenience and delay which the customer might suffer.

The act of discontinuing a customer's service because of unpaid bills is perhaps the most delicate of any we will be required to face. Certainly it will never occur until all other possible effort has failed for it robs the company of a customer and of a most persuasive tool by which to secure payment. Our reluctance to take such action always will be emphasized but should disconnection become necessary it will be presented to the customer as an unhappy, though unavoidable step to prevent the accrual of further arrears which we honestly believe he could not possibly pay.

On accounts which are no longer active, collection treatment will be carried just to a point where continued effort simply would prove irritating to the customer or where further follow-up would entail costs greater than the amount owing.

### Equipment Service and Dealer Relations

Appliance sales are simply a means to the end of increasing the use of the products we sell. Our activity in this field will be focused on the maintenance of standards of appliance quality and dealer integrity which will ultimately further the use of our service, thereby increasing sales. We shall have a comprehensive plan which among other qualities will take the dealers into our confidence and convince them that what benefits us benefits them.

Sound dealers relations will be fostered directly by providing facilities, free of charge, where dealers and their service and installation men may receive ample training in the best methods of installing and servicing equipment. We will let it be known that cooperative dealers . . . those who are willing to maintain a high standard of service and installation work . . . may be placed on our approved dealer lists. These will be given the benefit of our referrals when customers come to us for advice and counsel. Legitimate dealers will thus be encouraged to maintain standards in selling, installing and servicing which will insure customer satisfaction and avoid complaints.

### Summary

There is nothing quite as sure as change. In business, yes even the utility business, there is no standing still. Either we're progressive or backward, active or stagnant, improving or deteriorating. These plans, designed though they are to meet customer needs and wishes today, may be obsolete tomorrow.

It is therefore imperative that we keep in constant touch with customer reaction . . . both favorable and adverse. From those customers who bring their troubles to us we shall analyze causes and prepare summaries for review so that appropriate and prompt action may be taken to alter and improve our plans. So that we may know how those who do not come to us feel about our service we shall make periodic at-the-home surveys of a percentage of our customers, the results of which will be compared with summaries from customers who have brought their problems to us.

People will cheerfully pay a dollar for something they like but will grudgingly proffer a dime for the same something if it does not gratify their wishes. Let us not forget, *what the customer wills he gets,* either by reducing to the barest minimum the use of that which he does not like or by taking his business where he receives satisfaction. Because of the attitude which many people take toward us, the utility industry is much like the very sick Irishman who was asked by the priest if he had made peace with the Lord and denounced the devil. "I have made peace with the Lord, Father," replied the Irishman, "but I am in no position to antagonize anyone."

Long ago we left the era wherein our products were of a non-competitive monopolistic character. Every moment of every day we shall be competing for a part of the customer's dollar. The future progress of our business . . . if not its very existence . . . depends upon our ability to recognize, before our competitors, the will of the people we serve and so alter, broaden and extend our services that those desires may be fully satisfied.

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## National Contributions

(*Continued from page* 134)

necessary and all companies should see to it that they assume part of this very important work by allowing men in their organization to accept assignments offered to them.

With continuing good talent available to E.E.I.'s Commercial Division, I am confident that the electrical industry can depend on the Commercial Division to continue to be one of the outstanding National Organizations in the Country.

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"The War cost, up to Jan. 1, 1946, some $322,334,000,000" states the forthcoming Statistical Bulletin of the Edison Electric Institute for 1945. "This required the generation by public utility power plants of 300,000,000,000 kilowatthours for the manufacture of the country's munitions and materials of war and for the equipment maintenance and transportation of its armed forces. Of this amount, 250,000,000,000 kilowatthours, or 83 1/3 per cent of the entire total, were generated by the business-managed electric power companies."

# Monetary Inflation and the Public Utility Industry

By Prof. Harry G. Guthmann
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A paper presented before the Joint AGA-EEI National Accounting Conference, Cincinnati, Apr. 1-3, 1946

PROBABLY no economic question concerns business people more at the present time than that of inflation. The interest in that question is shared by the utility industry. The questions that confront it are where and how far prices will move as a result of inflationary forces set in motion during the war. Monetary inflation almost invariably accompanies every major war but in former times prices went skyward during the war and deflation was expected to go with demobilization. But during World Wars I and II the United States Government sat on the lid of prices during the war so that it is some time after the close of the War before it is possible to learn where the level of prices, once they are set free of controls, will settle. After World War I prices soared far higher in 1919-1920 after the war was concluded than at any time during the war, and after the depression of 1920-21, the wholesale commodity price level settled down during the following 1920's to a figure about 50 per cent higher than in 1913. Where are we headed today and what are the problems engendered for the utility industry?

A rising level of prices is a special problem for the utility business because under regulation, rates are adjusted upward to meet rising costs only tardily and with difficulty. Business generally under the price rule of OPA is getting a taste at the present time of what is a characteristic difficulty for the utility industry during a period of inflation. During the war just ended prices and wages were sufficiently controlled so that they created no serious problem for the utility industry as a whole. The burden of higher costs was made easy to bear by the huge increase in the volume of business for the electric and gas utilities with a general improvement in load factor. In fact, had not Federal corporate income taxes been pushed to very high levels, the stockholders of these utilities might have benefitted. While contributing heavily to the war effort with increased output, many major utilities, like Boston Edison, Consolidated Edison of N. Y., Commonwealth Edison, Pacific Gas and Electric, and Southern California Edison, were obliged to reduce their dividends during the war at a time when the cost of living was rising.

In contrast, during the last war the threat of rising prices was much greater. In February, 1918, when operating expenses had risen dangerously, Secretary McAdoo addressed a letter to President Wilson emphasizing the danger of a breakdown in service of war essential gas and electric utilities unless state commissions took action to meet the situation.[1] The further rise in prices after the war ended in 1918 created a continuing problem for the industry.[2]

The case of Peoples Gas Company from my own home city of Chicago furnishes an illustration of the troubles of the period endured by some companies. In 1915, its gross revenues were $17 millions and earnings were at the relatively satisfactory figure of $5.6 millions. By 1918 gross had mounted to $21.6 millions but net was reduced to $1.0 million. The peak of inflation was reached in 1920 and gross reached $31.2 but net was only $2.7 millions. Prices broke in the later part of 1920 but rate adjustments enabled 1921 to show $32.8 millions of gross revenues. While this represented an increase in revenues of only $1.6 millions, net climbed from $2.7 to $8.3 millions. Deflation in operating costs spelled the change.

Some idea of conditions may be had from the fact that between 1915 and 1920 union hourly wage rates rose 100 per cent and the price of bituminous coal rose 170 per cent.[3]

Attempts to draw a parallel between what happened during and after World War I and World War II should be carried out with caution. Many of the details of war financing changed. However, the general outline of the picture appears very similar. Again we are seeing postwar inflation carrying prices to higher levels *after* the firing is all over and the huge spending is discontinued. The quantities of currency and bank deposits that grew out of war finance are producing a new and higher price level. Where that price level should settle remains to be seen. But the very fact that artificial price controls were more successful during this war than they were a quarter-century ago, means that prices have that much farther to travel than before.

However, it is the hope of many that price controls can be removed more gradually, say over the next year or year and a half, so that the sharp speculative rise in commodities that occurred during 1919-1920 can be avoided so as to make less likely a price crash such as we witnessed in 1920-21. Those who

[1] P. U. R. 1918 D, 223-225.
[2] See E. M. Bernstein. *Public Utility Rate Making and the Price Level*, pp. 34-35.
[3] Ibid. p. 33.

TABLE I—PEOPLES GAS COMPANY OF CHICAGO

| Year | Capitalization (Millions) | Gross Revenues | Net Earnings | Ratio Capitalization to Gross Revenues |
|---|---|---|---|---|
| 1911 | 75.1 | 15.9 | 5.2 | 4.72 to 1 |
| 1912 | 78.1 | 16.4 | 4.8 | 4.76 to 1 |
| 1913 | 85.2 | 16.8 | 5.1 | 5.07 to 1 |
| 1914 | 85.2 | 16.8 | 5.7 | 5.07 to 1 |
| 1915 | 85.2 | 17.0 | 5.6 | 5.61 to 1 |
| 1916 | 85.1 | 17.1 | 4.4 | 4.97 to 1 |
| 1917 | 84.8 | 19.3 | 2.0 | 4.39 to 1 |
| 1918 | 84.8 | 21.6 | 1.0 | 3.92 to 1 |
| 1919 | 84.8 | 24.5 | 2.4 | 3.46 to 1 |
| 1920 | 84.7 | 31.2 | 2.7 | 2.71 to 1 |
| 1921 | 84.6 | 32.8 | 8.3 | 2.57 to 1 |
| 1922 | 84.6 | 30.6 | 7.3 | 2.76 to 1 |
| 1923 | 84.6 | 31.5 | 8.2 | 2.67 to 1 |
| 1924 | 90.4 | 32.5 | 8.7 | 2.78 to 1 |
| 1925 | 94.1 | 32.9 | 7.9 | 2.86 to 1 |
| 1926 | 98.5 | 34.8 | 8.2 | 2.83 to 1 |

Dividends were omitted from 1918 to 1921, inclusive.

advocate such tapering off on price controls believe that another year should be sufficient to step up the production of nondurable goods to the point where it will equal demand. Such nondurable goods include food and clothing, which constitute the bulk of the cost of living. The danger in such a program lies in an overzealous attempt to protect the consumer to the point where price increases are granted so tardily as to restrict production and greatly delay the return to full economic output.

From the point of view of the utility industry anything which smoothes out the more extreme movement of prices makes it easier to adjust to the change and is especially to be desired if it can eliminate a short-term up-and-down of violent proportions.

The accompanying chart enables the reader to see the effect of the two World Wars upon utility construction costs, the cost of living, and the average per kilowatt hour charge for residential use. The index of Construction costs illustrates the more violent price fluctuations that take place in that field of prices. The Haberly index used here shows somewhat less fluctuations than the Engineering News Record index of construction costs and is more appropriate for measuring the elements that go into utility plant account. The residential power rate has a remarkable record and should continue to reflect the favoring influence of a growing demand per customer but the experience of World War I indicates that it cannot be regarded as immune to inflation.

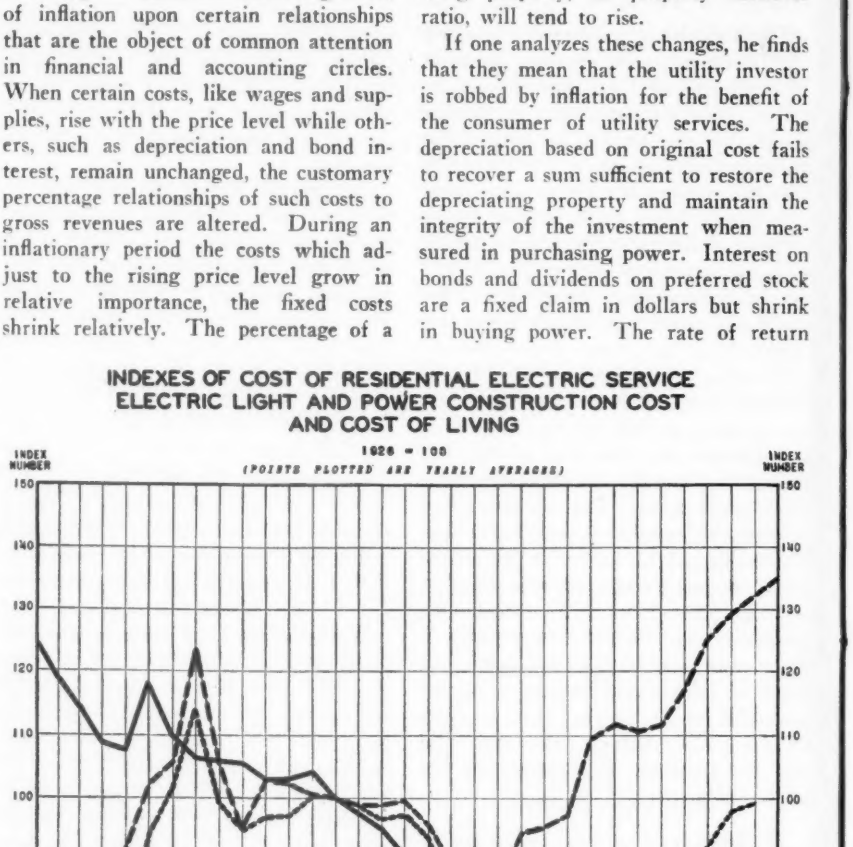
The elimination of the Federal excess profits tax and the reduction of the ordinary corporate rates have raised hopes of rate reductions. In fact, in some communities, such as Chicago, reductions have already been approved. But with the prospect of wage increases and other increasing costs, notably coal, the extent of such reductions, if any, should be subject to the closest scrutiny if later financial embarrassment is to be avoided. The accounting division will find it desirable to prepare projected figures on the basis of possible increases in the various cost factors in order that rate negotiations may be judiciously conducted. It might even be desirable to anticipate wage demands of employees so as to avoid a temporary showing of earnings that could be made the object of demands for ill-advised rate reductions.

The gravity of the problem plus the practical difficulty of restoring rates once reduced would even argue the consideration of some plan for customer refunds rather than outright rate reductions that would in effect render "Service-at-Cost" until the effect of rising costs that lie immediately ahead can be properly appraised.

In the period that lies ahead we must also keep in mind the distorting effect of inflation upon certain relationships that are the object of common attention in financial and accounting circles. When certain costs, like wages and supplies, rise with the price level while others, such as depreciation and bond interest, remain unchanged, the customary percentage relationships of such costs to gross revenues are altered. During an inflationary period the costs which adjust to the rising price level grow in relative importance, the fixed costs shrink relatively. The percentage of a fixed cost, like depreciation, to gross revenues will decline. Because operating costs rise while the return to capital changes but little, the operating ratio will tend to increase. Because revenue rises to cover rising costs while property is carried at the fixed figure of original cost, the ratio of gross revenues to operating property, or property turnover ratio, will tend to rise.

If one analyzes these changes, he finds that they mean that the utility investor is robbed by inflation for the benefit of the consumer of utility services. The depreciation based on original cost fails to recover a sum sufficient to restore the depreciating property and maintain the integrity of the investment when measured in purchasing power. Interest on bonds and dividends on preferred stock are a fixed claim in dollars but shrink in buying power. The rate of return

**INDEXES OF COST OF RESIDENTIAL ELECTRIC SERVICE ELECTRIC LIGHT AND POWER CONSTRUCTION COST AND COST OF LIVING**



to the common stockholder may vary somewhat and rise somewhat during a period of inflation but the principal sum on which the return is allowed will continue to be anchored to a fixed number of dollars of shrinking purchasing power.

These are the unfortunate but natural consequences of the heavy use of bonds and preferred stock in utility financing and the use of the prudent investment principle in valuing rate base. Under the circumstances, it seems unlikely that any cure can be found for the troubles of the utility investor short of steps that would stabilize the purchasing power of the dollar.

This brings us to the $64 question. Where is the price level headed? The correct answer probably lies between that of the extremists on the one hand who blithely predict we shall have no inflation because American productivity will offset all our monetary misdeeds and of those others who gloomily forecast that Federal policies are heading us inevitably for inflationary disaster such as France and Germany experienced during the 1920's.

Production alone cannot win the battle of inflation and counterbalance all unsound Government finance. It is, however, of first rate importance that our production be revived as rapidly as possible for it will reduce the hazard.

Our experience after World War I points to the probability of further price rises until prices find their natural level. The large additions to our supply of money in circulation and bank deposits that grew out of our failure to finance the war by taxation and savings point to a higher or inflated price level ahead of us as compared with 1939, just as the price level of the 1920's was higher than that of 1913.

In this connection it is interesting to make a rough comparison of the figures for the two World War periods. Money in circulation and bank deposits doubled during the war and postwar inflation of the first World War. Our stock of money rose from $3.8 billions in 1913 to $8.2 billions in 1920; all bank deposits rose from $17.5 in 1913 to $38.2 in 1920. The more exact and satisfactory figures for World War II are not strictly comparable with the preceding figures but serve to indicate the same relative magnitudes. The amount of currency in circulation outside of banks rose from $6.4 billions in December, 1939, to $26.8 billions in December, 1945, or over four times. The total demand deposits of all commercial banks rose in the same period from $29.8 to $79.9 or 2 2/3 times.

TABLE II—EXPANSION OF DEMAND DEPOSITS OF ALL U. S. COMMERCIAL BANKS AND MONEY IN CIRCULATION OUTSIDE OF BANKS
*(billions of dollars)*

| | *Demand Deposits* | *Currency Outside Banks* | *Total* |
|---|---|---|---|
| December, 1929 | $22.5 | $3.6 | $26.4 |
| " 1933 | 15.0 | 4.8 | 19.0 |
| " 1939 | 29.8 | 6.4 | 36.2 |
| " 1940 | 34.9 | 7.3 | 42.3 |
| " 1941 | 39.0 | 9.6 | 48.6 |
| " 1942 | 48.9 | 13.9 | 62.9 |
| " 1943 | 60.8 | 18.8 | 79.6 |
| " 1944 | 66.9 | 23.5 | 90.4 |
| " 1945 | 75.9 | 26.8 | 102.7 |

Source: *Federal Reserve Bulletin*, February, 1946, p. 157.

I trust it is not out of place to suggest that every effort should be extended to curb unnecessary inflation and minimize business instability. We might enumerate some of the major planks in a desirable program:

1. Price controls, particularly for cost of living items, should be continued to minimize the danger of a short explosive inflation such as we experienced in 1919-1920. Such controls should be dropped as rapidly as shortages disappear in any given field.

2. Surplus goods of the Army, Navy and government agencies should be moved as rapidly as possible into civilian channels *now* while shortages exist.

3. The Government should keep its expenses down and its taxes up. The temptation to cut taxes in an election year is great. But the time to balance the budget and reduce debt is when business is active and inflation threatens. Whatever one's views on the soldiers' bonus, it would appear the height of unwisdom to pay it at a time when the supply of spendable cash far exceeds the amount of available goods. Such a large disbursement should be made when business conditions are bad and the cash would mean a maximum of benefit to the soldiers and the community.

4. The use of credit in fields where it will add fuel to inflation should be discouraged. Home financing is the largest and most important field of private finance. The Government created the F.H.A. plan for insuring mortgages on homes in order to stimulate building during the depression period of the 1930's. It allows 80 and 90 per cent loans on very easy terms that create a danger of wholesale loss of homes if they are made at high prices during inflation. Such easy lending does not increase the supply of homes during a period like the present but increases the number of bidders for a limited supply and tends to push prices of homes even higher. Normal lending standards and precautions should be reintroduced if we wish to avoid a bigger real estate smash than we had during the early 1930's.

5. For a short time, at least, until demands of other borrowers increase, the Treasury should shrink the war inflated volume of bank deposits by selling its obligations to savings institutions and individual savers and paying off a part of its debt to the Federal Reserve banks and the commercial banks.

Here we touch upon a matter which if thoroughly examined would carry us far beyond the scope of our discussion. It is of central importance and is concerned with the Treasury's dilemma growing out of its inflationary war finance policies.

In order to raise money beyond what savers could supply and to gain the advantage of borrowing at extremely low rates, often less than one per cent per year on certain obligations, the Treasury sold a huge amount of short-term debt to the banks. The magnitude of the operation may be judged when we note that as of August 31, 1945, the commercial banks and the Federal Reserve banks owned 39 per cent of the total United States interest-bearing debt, or $101 billions out of the $261 billions total. So long as the Federal Reserve banks disregarded their own declining reserve ratio they could create reserves artificially for the commercial banks by purchases of Government securities. To have stopped this process of easing the money market would have wiped out this artificial source of funds that was independent of saving and raised interest rates and the cost of borrowing.

That the process was inflationary was recognized by the Treasury which sought to maximize purchases by savers in the War Loan drives and minimize this bank credit expansion that bloated the deposits of the nation. Such deposits have the character of money and the process of their creation has been called "monetizing the Government debt." Others have dubbed it sophisticated greenbackism.

Now this short-term debt is continually coming due and needs to be refinanced so that the Treasury is under the necessity of requiring further Federal Reserve bank cooperation to keep the money market easy so that the interest rate will stay low. But the price of low interest rates is inflation. The Fed-

eral Reserve must stand ready to pour more credit into the market to keep borrowing cheap.

But with the war over, borrowing for business purposes, for home construction, and for municipal purposes will take the place of Federal borrowing. To continue this artificial supply of credit and low interest rates for this peacetime borrowing means continuing the war inflationary process during the peace. But to tighten the market to prevent such inflationary expansion means paying higher rates for Treasury borrowing amounting to huge sums on Uncle Sam's large short-term debts that are subject to frequent refinancing.

We shall hear much of schemes to solve this dilemma. One proposal made is that the banks should freeze their Government holdings by exchanging them—or at least a substantial portion of them—into a special Government obligation paying a low rate of interest and salable only among the banks themselves. This "solution" would make it unnecessry for the Treasury to refinance the major part of the short-term debt now held by the banks. Then the Treasury, no longer so deeply concerned over interest rates, could let the money market take its natural course. Interest rates could be allowed to rise if there were inflationary demands for credit. Only that part of Uncle Sam's debts held outside the banks would have to be refinanced as it comes due at whatever interest rates might prevail at the time. If some bonds or notes came due during a period of credit stringency such as might occur during the next few years of transition, interest rates might rise temporarily but their effect on Uncle Sam's budget would be limited.

The whole subject is one of many ramifications and technical details and the foregoing statement merely hints at the problem in rough outline. But we can say that until a solution has been found, the Treasury's large short-term debt and its anxiety to keep the interest rate down create an additional hazard that the inflationary technique of war finance through bank credit expansion will be used again during the period ahead and produce further inflation.

In conclusion, it appears from the facts we have reviewed that the rise in the price level which has been experienced thus far reflects only a portion of our wartime inflationary financing and that further increases lie ahead. The amount of these increases cannot be forecast with any exactness because they will be determined in part by psychological factors, such as the people's confidence in their currency and their willingness to defer spending during the period of shortages, and in part upon the wisdom with which the Federal Government acts in such matters as spending, credit control, and debt management.

In the light of our findings, an intelligent policy for the utility industry would be to prepare for a higher price level than has been seen thus far. Possible need for rate increases should receive the most careful analysis. Regulatory authorities should be kept aware of the hazard wherever rate reductions are being sought. The effects of varying degrees of price rise upon budgetary requirements should be projected and data kept available for planning against the inflationary contingency. Should it turn out that actual price level increases amount to less than we might have anticipated on the basis of the evidence to date, we shall merely have pursued a judicious policy of preparedness for an economic battle that we shall have been fortunate to have avoided.

## HOW MANY COMPANIES—

*Connect Residential Applicants without requesting signatures?*

*Assign all customer accounting responsibilities to one executive?*

*Maintain customer history records?*

*Have meter readers report abnormally high or low consumption?*

*Explain to customers the rates under which billing will be rendered?*

*Allow collectors to grant extensions?*

*Have adopted the station plan or the unit plan of bookkeeping?*

The answers to these and many other questions that are of interest to the utility accountant, are given in the report of the joint customer activities committee of the Edison Electric Institute and the American Gas Association.

This report represents one of the most pretentious efforts that the industry has made to cover the whole field of customer accounting at one time. All utility employees interested in customer accounting should have a copy of this report on file for reference.

***Copies may be purchased from the Edison Electric Institute, 420 Lexington Ave., New York 17, N. Y.***

# New Ideas In Sales Training

**By R. W. Wagner**
*New York Power & Light Corporation*

Presented before the Annual Sales Conference, Edison Electric Institute, Chicago, April 2-4th.

DURING the past five years changes in educational methods have occurred without any general knowledge of their import. Millions of young Americans have been taken from their normal lives and re-educated in the highly technical arts of war. Not only have millions of the Armed Forces learned new skills but the methods used in training have been revolutionary and highly successful. The men and women you employ as salesmen are thoroughly acquainted with new training methods while you, as sales executives, may find that you are not so well advanced and your salesmen may regard your training methods as antediluvian.

### Army-Navy Acclaim Slide Films

Army and Navy staffs studied training from the viewpoint of high speed production regardless of cost and the methods adopted are those in which results only were considered. Research proved that to secure maximum results in minimum time the pedagogy of training must strike the eye and ear of the trainee from every conceivable angle. First conception indicated that the movie was the finest way to teach because it showed action. It was certainly costly ($30,000 to $50,000 for a fifteen minute short) but cost is no problem in war. Results, however, were to the contrary. While movies provided the best way of giving a cursory glance at any problem and while they provided entertainment they did not, to any great extent, teach. The main educational tool used by both Army and Navy was the sound slide film, because the training objective could be driven home to both eye and ear by concentration on a given point without the distraction of motion on the screen. Each objective can be driven home to the eye by the projection of slide film on the screen and by the printed word in the text. To the ear the same salient points are driven home by the mechanical sound of the projector and by the instructor's voice. Both senses are again reached by the use of the trailer film resumé where the instructor's voice emphasizes these same points pictured by the silent picture, shown for the length of time needed to make it most effective.

Your salesmen are fully acquainted with these modern methods of instruction and may be quite impatient if you attempt to train with methods of the prewar era. Many men have been trained in six weeks or less to master highly technical problems requiring more skill than salesmanship. Therefore, I suggest that you equip yourself, for your own welfare, if for no other reason, to use modern sales training techniques.

When our industry began, the uses for electricity were as little known as the applications for atomic energy, but that day is gone. It was once necessary to pioneer all types of devices using electrical energy but that period is over and many appliances have general acceptance. Many new fields for our product (and we have only one) need development and our sales energies should be expended in such pioneering. Dealers and distributors are stronger and are getting better men. The general trend is toward decreased utility merchandising and toward greater assistance to dealers and distributors in the form of sales aids, particularly educational plans for salesmen and skilled help in solving managerial problems.

### Change Sales Policies Now

Now is the time to make changes in sales policies if you are to make them. Public demand for domestic appliances is far greater than present limited manufacturing output can supply. You have the time now to build and strengthen dealer organizations in your territory with little fear of lost merchandise sales to competing fuels or services.

Much money has been spent in pioneering appliances such as the electrical refrigerator, the electrical range and kindred devices and acceptance is almost universal. But many uses for our product are little appreciated; lighting, for instance, is practically a virgin market. Sometimes we find light enough by which to see, but lighting for seeing has gone only 10 per cent of the way to its ultimate goal (take a light meter with you for one day and check the light found at each place you visit against recommended practice and the result will startle you). As for real sales lighting, it practically doesn't exist to the extent that our knowledge has proved its use to be profitable. Electronic devices, induction heating, infra-red applications, all of these fields and many others are practically unscratched. So why not spend your sales dollars on new fields to develop new uses that will many times exceed your present domestic markets.

### All-Industry Language Needed

Our industry and by that I mean all phases, manufacturers, wholesalers, distributors, dealers and utilities has been very backward in many ways, particularly because there has been no great need to fortify our position. Our business has grown by leaps and bounds and we have been able to follow any path and yet increase our sales. But we need, and we need now, uniform policies and particularly for sales. We should all be talking the same language to our customers because our competitors are well organized and will seize upon our lack of organization and coherence to push us out of our position of leadership.

All salesmen of all branches of our industry should be trained in the same general way and we should not find ourselves contradicting the dealer or the distributor. It doesn't make so much difference what training pedagogy is used but it should be the same for all of us. For the first time such a uniform training plan is available and it is our function to insure its general use by all branches of the industry not because it is our plan, not because it is the best plan but because it is a good plan and because it is the only plan available that can be used

for every type of selling in the electrical industry.

EEI has developed a sales course which fits all classes of electrical selling, dealers, distributors, department stores, wholesalers, manufacturers, merchandising utilities and the non-merchandising utilities. One sales pattern is used for all types of salesmen, domestic, commercial and industrial. Only four basic buying decisions are used and the plan is so simple that it can be easily assimilated. Here is the chance to secure uniform sales methods throughout our entire industry under conditions which will reduce your sales expense more than any other single factor previously available. Train your dealers' salesmen and they will sell your kilowatthours.

The preparation of this sales training course has cost $150,000. The editorial group, of which I have been the unfortunate chairman, has spent more than one day per week in New York City since last September in addition to research and study in our own offices. Every known source of training material has been explored and the producer, Vocafilm Corporation, has supplemented its own staff with the best sales consultants available. Fortunately NEWA has participated in every step of the work and has actively promoted the use of the course by its members and their dealers; their aid has assisted greatly in devising a course which applies equally well to any branch of our industry. Nothing has been spared to make this the finest training tool our minds could conceive.

### Thousands of Salesmen Successfully Trained

About 175 of the basic sales courses are in use and the successful training of thousands of salesmen has already proved the value and soundness of the project. The residential course is now delivered, the commercial section will be delivered between the 10th and 15th of April and the rural section will be delivered about May 15th.

This course affords, for the first time, a chance to promote men from one class of selling to another without changing basic selling methods because the same sales technique applies regardless of the type of selling. This course feeds its ideas to the salesman through his eye and to his ear; sound of the recorded voice strikes his ear, pictures strike his eye, the instructor's voice again reaches his ear, sight of the trailer film holds his eye, the printed word of the manual again strikes the eye and lastly the instructor's oral review penetrates his ear. He can't forget because he hasn't a chance.

No educational plan or device is better than the man who presents it. If you present this to your salesmen or to your dealer groups just as another sales training plan it will be just that. You must put more time and effort into training your instructors than you do into presenting the training to the sales groups. Your leaders must be "letter perfect" to get the real value available. The right material has been incorporated into the films and printed material but what you get out of it depends on you and you alone.

Sales conference groups should be small, twelve to eighteen preferably and never more than twenty. The entire tone should be informal to encourage discussion and to insure the mutual participation that is vital to the success of any training. Conferences should be planned to the smallest detail well in advance and every "prop" such as chalk, blackboard, etc., available at the instructor's hand. It is well to use "brass hats" at the first meeting to be sure that all participants realize the importance of the training but to secure results leave the "brass" out after the first session. This sales training material will do your job.

### Purchases Indicate Value

The fact that major electric manufacturers as well as sales departments of companies who have no connection with the electrical industry are purchasing this material, indicates its value as a training tool. Accurate examination will indicate to you that it is truly a Basic Sales Training plan which could be used equally well by soap, oil or rubber sales groups. The plan is not new and the sound slide film method is not new, but it does recapitulate and bind into one unit the best parts of all sales material previously presented by varied industries.

Let me plead with you! Don't drop back into old methods just because it is the easy way; times have changed, salesmen have changed, customers have changed and if you don't change someone will change you. Once there was a lush era when the growth of customer requirements for electrical service would bury your mistakes without leaving a trace of the grave, but not today. Rates are lower, competition is much keener and profit margins are lower. Sales organizations must be streamlined and highly productive for every dollar spent.

Electricity is practically the only item which has been available in unlimited quantities throughout the war and in the present era of shortages we continue this almost unbelievable record and our customers know it. We all face the enigma of inflation for which the only conclusive answer is production of all types of goods to the point of satiety. We are the only ones who today can supply our product in any quantity the purchaser desires at a price lower than in the pre-war period. Therefore, we should capitalize on our record and train those who sell electrical service to our customers in such a way that we can maintain this position of leadership.

### Better Men Needed

Maybe you won't need domestic salesmen. It just might be that you need never again employ a large number of men pushing door bells. Perhaps one good man handling dealers and training their salesmen would put more load on your lines and cost you less than ten domestic salesmen, peddling electrical merchandise.

You probably will need commercial salesmen. Public knowledge and acceptance of lighting for selling and seeing is still lacking but trim your sails so that you can turn when the winds of change hit this field. Try to employ fewer and much better men.

Your power men are the builders of your revenue foundations. You don't have the homes which use lights, ranges, water heaters; you don't have stores that use lighting and small power devices; you don't have street lighting; you don't have well lighted schools until you have industry to employ the families who live in homes, buy in stores, send children to schools and use your kilowatthours (and just incidentally industries provide the payroll).

What kind of men are building your revenue foundations? You expect them to meet and win battles of wit with the top executives of industry who "God Forbid" are earning more money and usually are a little more clever than we. Yet you expect your power men to come out on top and sell to industry.

Let me again plead with you, expect a hell of a lot more than you have been getting for your dollar of sales expense and get it, but to do so you must employ better salesmen and you must expect to pay and pay well for what you get. Hiring the best men and using the latest training methods is the only solution to lower sales cost per dollar of revenue.

# A District Representative Plan

By John R. Gardner
*Central Hudson Gas & Electric Corp.*

A paper presented before the Joint A.G.A.-E.E.I. Customer Relations Committee Meeting, Cincinnati, O., April 1-3.

THIS paper covers the so-called Commercial Representative Plan as used by the Central Hudson Gas & Electric Corporation.

It is believed that many other companies have operated under plans more or less similar to that described in this report, such as the "Bill Jones" plan originated by Mr. Vincent of Syracuse, the "District Representative" plan used by the Blackstone Gas & Electric Company in Rhode Island, and others with different titles or no title at all.

No claim for originality is made, therefore, for the particular plan described in this report. It is thought, however, that an explanation of the operation and advantages of this plan will be of interest and stimulate thought and discussion regarding the matter.

The Commercial Representative Plan as defined in this report is a plan under which all work involving entry into the customers' premises or personal contact with customers in a given area is performed by a single employee, designated as a commercial representative. It contrasts and is distinguished, therefore, from organization plans in which meter reading, collecting, appliance adjustments, explanation or adjustment of bills, missionary sales work, etc., are performed by different employees, each of whom performs only one of these functions.

In discussing Central Hudson's plan it should be pointed out that the territory served is restricted to small cities, villages, and rural territory in which the largest community has a population of 50,000 and the total population of 267,000 is spread out over 2,500 square miles. The 80,000 odd customers supplied are relatively stable small town and country folks except for several thousand summer seasonal residents. Whether the plan which works successfully in this territory would operate satisfactorily in metropolitan centers or communities of a different character can best be judged by those who operate in such territory.

Employees who contact customers have frequently been told that "so far as the customer is concerned you are the company." This is made literally true under the Commercial Representative Plan since it is intended that each representative be responsible for and represent the company in all contacts with the customers in his district. It is obviously impossible for each district representative to have the knowledge or skill necessary to handle every customer problem without assistance. It is his job, however, to obtain necessary information or advice on unusual problems from his supervisor or the company's technical specialists before attempting to dispose of it and then use such information in handling the matter himself directly with the customer. If specialists must deal directly with the customer the district representative calls them in to *assist* him; the specialists do not step in to *supersede* him, as men of higher authority.

The following list includes the principal specific jobs performed by the customer representatives:

1. Cutins and cutouts, including the setting and removal of meters where necessary. We are also training these men to connect service wires to our secondary circuits so that service can be established promptly in a new building without calling out an operating department crew.
2. Collection of security deposit from new customers when necessary, or passing on his credit where the deposit is waived.
3. Meter reading. Bimonthly for watthour meters and monthly for demand meters.
4. Collection of delinquent bills. Locking service or extending credit when delinquent accounts remain unpaid.
5. Explanation of bills in response to customers' inquiries and adjustment of bills where appropriate. This involves checking the application of the rate to the customer's usage and installation and interpreting the rates to the customer.
6. Adjustment of appliances. Wherever possible repair of appliances is now done by servicemen of appliance dealers to whom the commercial representative refers the customer. Upon request of the dealer the commercial representative advises the dealer on the methods to be used in doing difficult repair jobs.
7. Negotiations for extension of lines and service laterals where required to serve applicants for service.
8. Missionary sales work. The commercial representative observes his customers' needs; interests them in purchasing appliances by informing them regarding their advantages and the cost of owning and operating them; turns over prospects to sales promotion men who co-operate with dealers and contractors in closing sales.

When a commercial representative finds a store is a prospect for new lighting or a small commercial or industrial customer needs advice regarding a power application he calls the company's lighting specialists or power engineer as *his* representative to give the customer needed technical advice.

From this description of the duties of the customer representatives it is obvious that they must be men with acceptable personality, good judgment in dealing with the public, some mechanical skill, and the ability to organize and plan their work without constant direct supervision. They must also have or acquire a fairly extensive knowledge of the company's organization, policies, rates, and service practices if they are to properly represent the company.

Obviously men already having all these qualifications are not to be found either in a utility company organization or outside it. As new men are hired for training as commercial representatives educational qualifications, such as a complete high school course, can be established and some effort can be made to select people with an aptitude for the work. Initially the selection was limited to existing specialized personnel, such as meter readers, servicemen, and clerks, many of them middle-aged and somewhat doubtful of their ability to acquire new skills or assume new responsibilities.

In spite of their limitations such men have to be adapted to the job of commercial representative. The training program by which their latent talents are uncovered and developed is an absolutely essential part of the Commercial Representative Plan.

This training program is divided into two parts: An initial course before the man undertakes the job of commercial representative; and systematic continued training thereafter to correct his weaknesses as they are disclosed and keep him informed of new practices and new duties.

The initial training course for men already employed by the company on specialized jobs occupied two hours a week for three months. Instruction was given on company time in classes of about a dozen men which were held at the beginning of the day so that the trainees would be most alert. Instruction

was given by regular supervisors (local commercial and operating managers, service supervisors, and local office chief clerks) rather than specially assigned instructors. The course followed an outline laid out by the chief service supervisor in which about half the material related to customer contact problems and routines while the other half related to the mechanical work involved such as setting meters and servicing appliances.

The material taught in this course was found to a considerable extent in the company's Commercial Information Handbook. This covers the location and size of the company's operations; its organization; character of service supplied; rates; extension practices; meter reading and billing plans; credit policies; collection procedures; and cost of operating appliances.

At the close of this course an examination was given, partly in writing and partly by demonstration, and those who passed were rated as first, second, or third class commercial representatives depending on the grade attained. These examinations are prepared by the company but are reviewed by the union representatives and the union representatives may participate in giving and grading the examination if they so desire.

The initial training course now being conducted for veterans and men newly hired as candidates for jobs as commercial representatives is given to classes of eight men each.

In the portion of the course devoted to service work these men receive a week of continuous training in each of four successive months and spend the rest of these months working on simple relief assignments or in the field with a trained commercial representative. During the week of continuous training the morning sessions are devoted to lectures and demonstrations and the afternoons to practice work by the students.

The first week of this portion of the course takes up the scope of the company's business and description of its organization; methods of gas manufacture, transmission and distribution; construction of gas services and meters; methods of installing, unlocking and locking, and removing gas meters and governors and electric meters; meter reading; and customer records.

The second week covers proper installation of gas ranges, water heaters, and space heaters; adjustment of gas burners, thermostats and pilots; and putting on and removing electric service taps.

The third week's instruction explains the general layout and operation of the company's electric system; units of electrical measurement; and entrance switches, fuses, and circuit breakers.

The fourth week covers domestic electric appliances; lighting of various kinds; ranges and portable cooking equipment; motors; refrigerators; pumps; and water heaters; also one day is spent on the records and paper work relating to his service work kept by or for a commercial representative.

The second portion of this course will relate more particularly to the functions of the commercial representative in handling applications, adjusting complaints, collecting bills, and doing missionary sales work. It will occupy the full time of the trainees for about two weeks and cover the general information needed to carry on this part of the work, the forms and records used in it, and methods of performing it which are most acceptable to customers.

While the ground to be covered in the training courses is definitely outlined as stated above, flexibility in giving the instruction is maintained so that the time devoted to each subject is determined by what is required for the trainees to grasp it and not by a predetermined schedule.

Regular follow-up training is given in fortnightly meetings of all commercial representatives in each operating district where individual problems which have arisen and their proper solution are discussed and information on new practices is given out.

Districts covered by each commercial representative include about 2,000 combination gas and electric customers in the small cities served and 1,500 electric customers in the company's rural territory. The smaller number of customers included in rural districts reflects the greater time spent in travel and the greater number of matters referred by customers directly to commercial representatives in areas remote from company offices where a closer personal relation develops between the commercial representative and his customers.

In determining the layout and size of districts, allowance must be made not only for relative travel conditions but for the relative number of appliances such as householeaters requiring adjustments, the relative amount of collection effort required, and the relative rates of turnover of customers reflected in number of cutins and cutouts. This is necessary in order that the work to be done by the commercial representative in each district will be approximately equal in aggregate amount, although the amount of each kind of work may differ considerably in different territories.

Care is also required in the assignment of individuals to particular districts as the man who can deal well with customers in a well-to-do residential neighborhood may be unsuited to represent the company with farm customers or vice versa.

In carrying on his job each commercial representative is teamed with a particular clerk in the district office who keeps all records of the customers in the representative's territory, including the customer history cards, meter cards, billing register sheets, delinquent registers, duplicate bills used for collection follow-up, and deposit records. The district office clerk also acts as secretary of the commercial representative in receiving and relaying telephone messages and handling correspondence. One of these clerks, who are all women, normally handles the records of customers for two or three commercial representatives.

The commercial representative does not need to visit the company office to carry out his regular duties and is not required to do so daily or at any other regular interval except for the fortnightly training. His routine work, such as meter reading, collections, cutins and cutouts are scheduled for him by the district clerk handling his records. Meter books and other papers used in performing this work are transmitted by mail or by commuting office employees between the company office and the commercial representative's home.

Each morning the commercial representative calls the district office to obtain information regarding inquiries, complaints, and service calls in his territory from his district clerk; to receive special instructions from his supervisor; and to discuss special problems with his supervisor or with specialists (power engineer, etc.) when necessary. The commercial representative also informs his clerk where he will be working that day so that he can be located if necessary.

Outside the areas where the commercial representative has ready access to the district office, he remits his collections to it by money order. He also empties the collection boxes in his territory periodically and brings their contents to the district office.

After taking care of his routine work the commercial representative schedules the remainder of his time required for handling appliance service calls, inquiries, adjustments, and sales work according to his own best judgment. When peak loads develop as the result of seasonal cutins and cutouts, householder adjustments at the beginning of the heating season, etc., the commercial representative calls for help from his supervisor who assigns a relief man to assist the representative to the extent needed.

Commercial representatives are paid on an hourly basis and are not expected to work overtime unless instructed or permitted by their supervisor, although they are allowed a reasonable discretion in working overtime where they believe an emergency exists. Service calls received outside scheduled working hours must not be worked then except in emergencies but are to be referred to the district offices to which the customers may telephone from any point without charge.

Each commercial representative is provided with a company automobile, usually a coupe, which he keeps at or near his home. The employee purchases gas and oil for the car from local service stations where the company maintains accounts and takes the car to a company garage for repairs or to an outside repair shop as directed by our garage foremen.

Each commercial representative is required to provide a telephone in his residence at his own expense.

No special technique of personal supervision is employed. As stated previously, all commercial representatives in each district meet fortnightly with the district supervisory personnel for a conference regarding current problems. The supervisor also spends a day with each commercial representative occasionally to observe his work and instruct him as necessary.

As an overall check of the commercial representative's performance and productivity the weekly time sheet submitted for pay roll purposes is supplemented by a report which shows the time spent on various activities, amount of representative's overtime, time worked by other employees assigned as assistants, complaints received and their disposition, description of new business and special service work done, and auto mileage. At the company's main office the weekly reports of each commercial representative are summarized and supplemented by additional information on number of cutins and cutouts, number of meters read, number of accounts in arrears, and bad debt losses.

Because of the differing characteristics of the individual commercial representatives and the territories to which they are assigned, their relative productivity cannot be determined by direct comparison of these reports on a statistical basis. However, when these reports are reviewed by a supervisor intimately acquainted with the representatives and their territories they provide a valuable indication of the individual's performance and of his errors and weaknesses, which the supervisor can then endeavor to correct.

A regular check on the status of the representative's work is secured when a relief man takes over his district during the representative's annual vacation. Any pronounced failure of performance would be reflected, of course, in complaints from consumers directly to the company's offices.

Since the Commercial Representative Plan has been made effective during a period of rapidly changing wage rates, it is quite impossible to make a direct comparison of the costs of performing the various functions under this plan and the former plan where employees specialized in a single job.

In spite of this fact, it is our belief that the Commercial Representative Plan is no more costly than the superseded plan.

An obvious economy is in travel time and auto expense since the commercial representative can perform many different jobs on a single trip in his territory whereas the previous plan required separate trips by each specialist.

A second economy arises from the concentration of responsibility for the relations with individual customers which results in disposing of complaints and controversies at an early stage instead of permitting them to drag on to consume the time of several people. A meter reader may ignore a high reading but a commercial representative notes it on the spot and can discuss the situation with the customer, or make a needed appliance adjustment at once without waiting for a high bill complaint to develop after the conditions causing the unusual usage have been forgotten.

Because of the acquaintance of the commercial representative with his customers many matters can be disposed of in a direct informal manner which would require several conferences between employees and with the customer and preparation of extensive records if each aspect of the matter were handled by a specialist. This is notably true in the matter of collections. The acquaintance of the commercial representative with his customers enables him to know when the customer's circumstances actually justify extension of credit and when the customer's "hard luck story" is made up of whole cloth. Any appeal from the customer to the local office for credit not allowed by the representative is referred right back to him so that the customer is not able to shop around the organization to find some uninformed person who will extend undeserved credit. The fact that the commercial representative is the same individual who has assisted the customer by adjustment of his appliances, etc., makes it more difficult for the customer to refuse paying him than it is for him to refuse payment to a straight bill collector.

The representatives' responsibility for *all* relations with the customers also helps the company in other ways. He can obtain rights-of-way because of his acquaintance which would not be granted to an outside right-of-way man. He can obtain accurate information on the customers' attitudes and needs in connection with local problems, such as the establishment of a collection agency, which no man from company headquarters could obtain at all without weeks of work in making the acquaintance and securing the confidence of the customers. He reports new loads being added by individual customers so that the operating department can provide larger transformers before an overloaded one burns out or the company receives a voltage complaint.

A third economy is in supervision as the plan eliminates the time consumed in close scheduling and co-ordination of the work of various specialists. A supervisor investigating a situation in respect to any particular customer can now obtain *all* the facts from two people, the commercial representative and the district clerk handling the records for that representative's territory. He does not have to consult half a dozen people, none of whom knows the complete story regarding the situation and all of whom are prone to "pass the buck" in assuming any responsibility for it.

Considering the plan as a whole, we believe it improves service to customers, creates greater opportunity and provides greater compensation to individual em-

ployees, and simplifies the company organization.

The second of these advantages, its benefit to our employees, deserves a little elaboration.

We are all familiar with individual employees whose natural desire and need for more pay and greater prestige are thwarted when employed on "dead-end" jobs such as meter reading or collecting. Their productivity may decline because of discontent and their "grievances" reflecting it are a constant problem to their supervisors.

When such employees can be given a job worth three instead of two thousand dollars a year, when their self-confidence is increased by acquisition of new skills, and when their personal prestige in their community is enhanced by employment as a responsible representative of a respected business organization, their general outlook on life and attitude toward their employer may undergo a startling transformation. Their work with the utility company is no longer just a job—it is a career—in which success commands the respect of the customers they serve and justifies their own self-respect.

It has, therefore, been particularly gratifying to our supervisors engaged in training commercial representatives, to participate in a program which has so definitely increased both the earning power of their fellow employees and their worth as human beings.

One disadvantage which the plan has may be said to arise from its requirement that the district representatives must be sufficiently versatile to perform many different kinds of work in an acceptable manner. Occasionally the talents or tastes of a candidate for a commercial representative's job are found to be so limited or specialized that he cannot qualify for the work. Some good mechanics or salesmen lack the other aptitudes required for the job of commercial representative. Such employees have not become superfluous with the change in organization, however, as we still need a certain number of specialists to handle service jobs which require so much time that they would unduly interrupt the representatives' other work, or to do straight sales promotion work with and for our dealers.

Our Commercial Representative Plan was initiated in rural territory several years ago where its advantages are most obvious. Based on its successful operation there it has now been extended to two of the three small cities we serve and will be introduced in the third as soon as the meter routes are revised as necessary to conform with the areas to be assigned individual commercial representatives.

Based on our experience we commend the plan to the consideration of any company wishing to hold or create an efficient and loyal customer contact organization which will command your customers' confidence and respect.

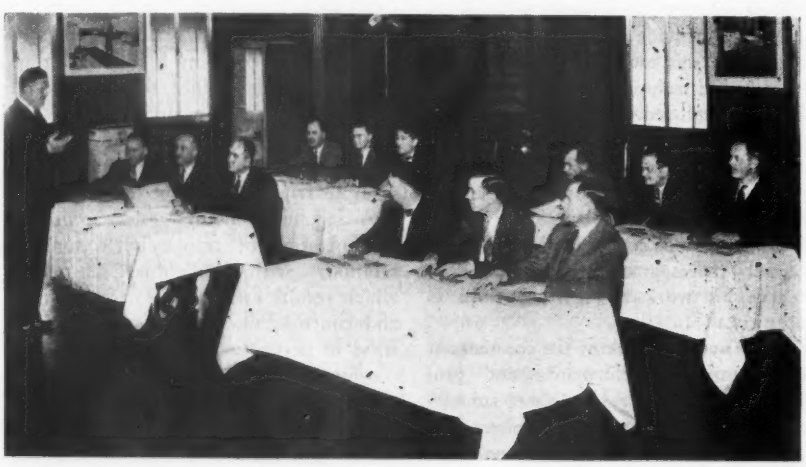
Because of consideration for my own time and that of other people on these committees, I have not circularized the industry generally to obtain information on the practices of other companies. However, some to whom I have written, including Mr. Keagy of the company here in Cincinnati, inform me that the various customer contact functions mentioned have frequently been assigned in rural areas or small communities to a single man who has acquired the necessary knowledge of them all by years of experience with his company.

Mr. Williams of the Niagara Hudson system informs me that the "Bill Jones" Plan previously mentioned, which was initiated by Mr. Vincent twenty years ago, is still in successful operation in the larger cities served by Niagara Hudson. Under this plan, one man takes care of all mechanical services required by the customer in a given limited area. The "Bill Jones" men have a supply of gas and electric meters on their trucks. They set and remove gas meters; turn on and turn off gas and electric meters; adjust gas appliances and make minor adjustments to electric appliances; replace fuses and handle all trouble calls in their area. The greatest good will feature of the "Bill Jones" Plan is the fact that one man can take care of the trouble call and doesn't have to pass the buck and maybe have two or three specialists follow him up.

Niagara Hudson also used the district representative plan in some rural territory for a number of years but gave it up at the start of the war. Their plan was abandoned because it was considered to increase the cost of routine operations such as meter reading without producing worth while results in attracting new business for a company not selling appliances.

It would certainly seem desirable for our committees to accumulate further information regarding similar plans of other companies in order that a broader picture of the entire industry's experience in this matter may be prepared for presentation at some subsequent meeting.

## Preparing for the Biggest Selling Job of All Time



Thirteen salesmen, whose sales experience with Cleveland Electric Illuminating Company adds up to over 200 years, are taking the Edison Electric Institute's Sales Training Course. Their individual records range from nine to twenty-one years with the company.

According to J. E. North, General Sales Manager, the men are enthusiastic about the course, and show their interest by regular class attendance, prompt completion of assignments, and carefully preparing demonstration sales for each weekly meeting.

New salesmen joining the Cleveland company first take an indoctrination course, then the E.E.I. Basic Sales Training Course. They are then given one of the E.E.I. specialized courses in residential, commercial or industrial sales. "We're preparing for the biggest selling job of all time now facing the electrical industry!" says Mr. North.

# The Utility and Newspaper Advertising

**By Basil L. Walters**

*Executive Editor, Chicago Daily News*

Presented before the Public Utilities Advertising Association Luncheon, Annual Sales Conference, Edison Electric Institute, Chicago, April 2-4

I AM delighted to have this opportunity to address you. I think I can assist you and my colleagues generally in the newspaper business by talking quite frankly about relationships between public utilities and newspapers.

I believe firmly in newspaper advertising. I believe that much of the progress in this country has been due to the intelligent use of newspaper advertising. I likewise believe that, if we are ever to spread the benefits and the blessings of mass production to all the people of this great land, we must accomplish it through creating the desire for better living through advertising.

There have been some poorly advised people in this country who have tried to destroy advertising. Some of them have undoubtedly had good intentions; others have had motives which I would frankly question.

No one should object to honest and constructive criticism of some types of advertising. The advertising profession in general has kept an open mind on these matters and has remedied many of the evils which were complained about.

On the other hand, there have been many unwarranted and undocumented and unjustified attacks on advertising as an institution. Criticism, to be helpful and constructive, must be documented and specific.

Many of the general attacks have come from persons who have termed themselves "liberals." Actually, some of these persons who have applied to themselves the name of "liberal" have disgraced the very word.

### Definition of "Liberal"

A true liberal is one who wishes to protect man in general against intrusions on his dignity. A true liberal is one who wants to give the individual man all the freedom from restraint and restriction he possibly can as long as that individual does not infringe on the rights, the freedom and the dignity of his fellow men. Certainly a true liberal believes in bringing the blessings of the mass production of which this country is capable to all of his fellow men.

Some of the so-called liberals have actually tried to bind this country up into a restrictive economy and to promote an economy of scarcity. Just what they eventually wish to achieve is beyond me. The only explanation I can give is that these men somehow hope, through a restrictive economy, to achieve for themselves greater power over their fellow men.

These phoney liberals have been quick to yell "Tory" at anyone who disagrees with them. They are intolerant of views other than their own and will stop at nothing to block opposition. These phoney liberals are the real Tories and they should be so branded.

This little minority of willful men who try to force their will upon the majority have been the most severe critics of advertising in general.

### Advertising Benefits Health

I read the other day the comment of a health officer of a great city. He said that, some time back, he had not been a believer in advertising, but, he went on to say, if it hadn't been for advertising, the orange and orange juice industry of this country would never have been used to aid in the general upbuilding of health in America.

Certainly America could never have been a nation that enjoys the greatest per capita of automobile ownership of any nation in the world if it had not been for advertising.

I want to mention two incidents that actually happened about 1908-1910.

Leroy Pelletiere, a great advertising man in Detroit, was called to the office of John Willys in Toledo and told that the Willys factory was loaded with automobiles to the extent that the plant would have a stop production or move the cars. Mr. Pelletiere went back to his office and prepared a page ad announcing the sale of Willys cars. He wired the ad to 26 publishers asking them to put the ad in the first available issue. The response was so great and so immediate that within four days the entire factory was sold out, and production continued.

That was the first time automobile makers realized the importance of newspapers, and since that time the newspaper has been one of the most powerful mediums for the sale of automobiles.

The other incident concerned Sam Insull, who called Mr. McJunkin into his Chicago office and told him he wanted to take kerosene lamps out of the home and substitute electricity. Mr. McJunkin prepared a page ad for newspapers telling the home owners that the company would come in and wire the home for electricity to replace kerosene lamps, to be paid for in 12 monthly installments. The ad appeared in only two newspapers, but the results were so spontaneous that they had to halt advertising until the company could catch up with the tremendous amount of orders that came in. With this experience Mr. Insull discovered that newspapers were the means of his success to get mass production.

Some of the would-be liberals have an idea that newspaper advertising is costly. Where would Mr. Willys have been if he hadn't used the newspapers to advertise his car? Where would Mr. Insull have been if he hadn't used newspapers?

### Advertising Helped Utilities

Do you men think for one minute that electricity and gas could have been made the servants universal of American mankind had it not been for the intelligent use of advertising?

If it had not been for advertising, women would still be cooking their meals over hot stoves, with coal and wood for fuel.

Had it not been for advertising, millions of American homes would still be lighted with kerosene lamps.

Had it not been for advertising, the broom would not have given away so quickly to the vacuum cleaner. Millions more would still be laboriously washing their clothes by hand in the wash tub, instead of using power-driven washing machines.

Utilities such as you represent have helped to build up in this country an economy which makes possible the payment of high wages to relatively unskilled labor, whose hours of work have

been gradually reduced through making man the master of the machine.

This, together with lower prices, has been accomplished through mass production. And mass production is possible only through the creation of mass demand.

If mass demand is maintained, good pay and large pay rolls can be maintained, so that the people generally can enjoy the fruits of production. That is what I mean by the economy of plenty.

The time has come for those of us who want America to continue great and who want our people to enjoy the better things of life to speak out frankly against the false prophets. We must speak with dignity, in contrast to their hysteria. We must be prepared to document our statements with facts and truth and absolute honesty.

No longer can we take for granted the fact that truth will win out. Eventually it will, but I, for one, do not want the truth to be left to historians who will tell how America followed the wrong path.

The trouble with men such as we are is that quite often we become so involved in our desire to produce more that we neglect to spend a little time to explain our motives and our goals to our fellow men.

### Youngsters Learn Newspaper Facts

Last month I attended a conference that was arranged by the *Detroit Free Press* for representatives of journalism classes in the various Detroit high schools. These youngsters were the most intelligent class of citizens I have seen in years. They came, they listened, and they asked searching questions.

One of the most interesting sessions was that led by the labor reporters of the *Detroit Free Press* and the *New York Times*. It was obvious from the questions that many of the students had been misinformed about how labor news is reported. These labor reporters explained that it was their duty to tell the facts as they saw them and as accurately as they could gather them. Several of the questioners obviously believed that all of the news stories should have been written either to help General Motors win the strike or to help the union win the strike.

I wish every industry in the land could set up a similar school to which it would invite delegates from the various high schools interested in that particular industry.

These youngsters are flattered when adults take them seriously, or when a great business takes them seriously. And, gentlemen, they should be taken seriously.

If these young people are competent to fight our wars and to risk their lives for this country, they are worthy of being taken seriously by every one of us, no matter how important our job may be.

These schools should be set up with no propaganda idea back of them. The top men in the business or the plant should be made available for short talks and for long periods of questioning. They should be prepared with documentary material to answer frankly and honestly any question put to them. If they voice opinion, they should say that it is opinion, but opinion should be kept to the minimum.

### The Utility and the Newspaper

Now for the relationship of utilities and newspapers specifically. There has been a chapter in this that we should be frank to admit, but which we should resolve will not be repeated. There have been sins by some utilities and by some newspapers in their relationships. There may be examples of sins in this relationship today. Let's be frank to admit our mistakes of the past, and let's be certain in our own souls that the institutions we represent will not repeat them in the future.

I am talking quite frankly about the practices that obtained in some places in the country up to the time of the first world war and continued in some instances up to 1929, when some utilities purchased advertising space on the theory that they were also purchasing editorial influence.

I have known specifically of only one example in which such a theory was advanced to me by a utility advertiser. One day one of my good friends in the utility business called me and said, "Stuffy, I was surprised to see the story about my company in the paper this morning." I asked, "Was the story inaccurate?" He replied, "No, it was an accurate account of a court action, but when I purchased the rotogravure page last month I thought I had taken care of that." I replied, "What!" and he repeated. I said, "My good friend, I will be over to your office as soon as I can get a check drawn to make a refund of the amount you paid for that ad." He said, "No, I'll come to your office."

When he came in, I had the check waiting for him. I handed it to him and he said, "Wait a minute. I think there is a misunderstanding." I said, "There certainly is—some place. If any representative of ours gave you any idea that he was selling you that space for reasons other than the value you would receive through the use of our advertising columns in the promotion of the sale of your goods, I will have to insist that you take the check and that we never accept any of your advertising in the future."

He explained that he had *assumed* that we would take care of the story which he knew was coming up if he purchased the ad. We went on for half an hour and, as a result of that conference, I believe the whole advertising philosophy of that utility was changed. I told him that whenever a newspaperman saw an ad in any publication which he realized was not a proper advertising medium, he immediately assumed that there was something wrong in the operation of that company. At that time his utility was advertising in several throwaway papers which we knew did not have a press run of more than 400 copies. We had checked once on some of them and found that the only copies delivered were those that went on the porches of the officers of that utility. We thought perhaps some of them might be distributed to the porches of certain public officials, but if they were, we were unsuccessful in tracing them.

That utility shifted its advertising to the purchase of space only on the basis that any other advertiser should purchase his space. That purpose should be to increase the demand for services or promote the sale of goods, or to promote, through the advertising copy itself, a better public relationship.

### Advertise in Reputable Papers

I have had utility men tell me that they did not dare advertise in one newspaper without advertising in all of them. The implication, of course, is bad. I cannot guarantee you, naturally, that some weak or unscrupulous so-called newspaper will not solicit advertising on the basis of editorial influence. I do know, however, that the great newspapers of this country do not sell editorial influence through advertising. You can help reputable newspapers, as well as reputable utilities, by keeping in mind that a blackmailer can never be satisfied. If you know of any newspaper publisher selling his editorial influence, the quicker you quit him the better for yourself and your industry.

(*Continued on page* 162)

# Training of Accounting Employees

Report of Joint Subcommittee on Accounting Employee Training of General Accounting Committees, A. W. Smith, Chairman, presented at the AGA-EEI Accounting Conference, Cincinnati, O., April 1-3, 1946.

IN the early days of American business, when our great industrial empire was being built, management gave all of its thought to materials and the mechanics of production. Little attention was paid to the human factor in business. It was easy to figure the speed of a drill, the number of strokes of a punch press, the production costs and tentative profits. All study and research was concentrated on improving manufacturing techniques and increasing speeds. No effort was ever made to improve human production. Sometimes, all the studies and tests seemed to have as their goal the elimination of the human factor.

Gradually, however, when in the search for further progress, it became apparent that there were definite limitations to machinery and mechanical processes, the human factor began to be recognized as of some importance. It was discovered that a worker could, with profit, be trained, developed and brought up to the level of efficiency already reached with machines. Then the first attempts were made to increase human efficiency—by training—and so employee training, as we know it, was born.

### Benefits of Employee Training

Over the years, from those days to the present, we have accumulated a wealth of knowledge and experience on employee training. From the early simple method wherein one employee passed on his learning and experience to a fellow worker, we have progressed to a point where many firms have established departments whose sole purpose is to plan, organize, and develop the best and most efficient methods of employee training. These departments are securing remarkable results, and where their plans are skillfully and intelligently carried out, the results have more than justified the effort and expense which have gone into their preparation, because employee training—

1. Improves the morale of the worker by offering opportunities for development and advancement.

2. Increases the workers' understanding of management's problems.

3. Stimulates the worker by making him feel that he is important enough to be recognized as worthy of particular instruction.

4. Provides flexibility and stability for the organization by training employees for more than one job.

5. Is an effective means of reducing costs.

6. Is an effective means of maintaining good customer relations.

Furthermore as these departments have developed, certain fundamental principles have become clear. For instance, no successful training program can be created simply by management's order. It must be systematically planned and continually supervised. It must have the active interest of, and be vigorously supported by the top executives. It must be sold to the employees and not forced upon them. It should be coordinated with other educational and recreational activities of the company. It must frequently be checked to make sure that it is fulfilling its purpose.

### Long Term Training Plan Needed

To a great degree, the war has been responsible for a variety of short, intensive training courses. Although many of these courses were most effective in accomplishing their immediate objectives, failure to re-evaluate the relationship of such courses to the long term training needs of a company may give rise to considerable unbalance in the over-all program.

It is important that almost every company look over its situation and estimate what results may be obtained, either by installing a training program or revising its present program.

This discussion of Accounting Employee Training will be confined to—

I. Induction Training
II. Job Training
III. Supervisory Training

### I—Induction Training

The process of introducing the new employee to the organization, giving him the information he needs to get started, and generally orienting him in the company is known as "Induction Training." Since this phase of training gives the employee his first impression of the company, it is of tremendous importance.

The purpose of such a program, which may vary from a few days to several weeks, is to acquaint the new employee with his associate workers, his supervisors, other departments of the company, and the company itself. He is given information such as his rate of pay, his working hours, the rules as to tardiness and absenteeism, the company's sick policy, vacation policy, and other employee privileges. Many utilities include in such training a general outline of the utility business, its history, its reasons for being, and its plan for the future. Some include brief outlines of rates, corporate and financial structure, production and distribution facilities. Some explain what a kilowatt hour or cubic foot is. The new employee doesn't know these things but he will eventually get the information somewhere. The decision to be made, then, is whether he will be allowed to acquire such knowledge as best he can, or whether it will be presented to him in a clear, accurate, and organized manner. There is little doubt as to which method is the better. The new employee should understand the heritage and responsibilities of the utility industry. Our customers regard him as the company in his social and civic life as well as in his business contacts. He, then, should know about the company. He is an important factor in the organization. He should be made to feel important. He should be welcomed, trained, and respected.

### II—Job Training

Job training means training on the job and is intended to benefit both the worker and the company by improving the worker's skill and capacity. It is most important to remember that job training goes on anyway and again that it is only a question whether it will go

on with planning or without planning. Job training is the second step in a well formulated training program and is a corollary to induction training. The new employee is now at work and sees the actual operation of those things taught him in his induction training. As a human being, he will wonder about things and ask questions. Quite naturally, these will be directed to his supervisor, so it is obvious that the key to good job instruction is the supervisor or his assistant. The supervisor must have skill as an instructor. He must be a good trainer. He must have the time and facilities to do the job properly. Individuals vary and their training needs vary so job training should not be standardized. The trainer must appraise the new man and ask himself—

(1) What are the job requirements and how well can he do the job?

(2) How long will it take him to do the job properly?

(3) How best can I teach him so that he will learn the job?

(4) Is he confused by some particular phase of the job?

(5) How can I tell that he is thoroughly trained?

Training outlines or job instruction sheets can well be used as checks to insure careful and detailed instruction.

#### III—Supervisory Training

Within the past few years, supervisory training has come to take an important place in any over-all training program. Conversations with executives in many companies, whether they have a current supervisory training program or not, show an awareness of the benefits to be derived and a desire to do something in the field. Two factors contributed to the development of this type of thinking: (1) the realization that the supervisor has an extremely important part to play in the development of good employee relations; and (2) the realization that the supervisor is the keystone in any general improvement of the efficiency of an organization.

In determining whether to enter upon an organized supervisory training program it should be recognized that supervisory training also goes on whether it is organized or not. Supervisors, like other employees, will learn, in the absence of specific training, by example, by trial and error, and by experience. The question to be answered is whether we can afford to leave to chance the training and development of supervisory and management personnel?

The subjects or areas for training are dependent on the needs for knowledge and skill in performing supervisory functions. Basically, they are five:

1. Knowledge of the work.
2. Knowledge of responsibilities and authority.
3. Skill as an instructor.
4. Skill as an organizer or planner.
5. Skill as a leader.

1. *Knowledge of the Work*—While this requisite has in many ways received adequate attention, it may be mentioned that there is need for a continuous exchange of ideas. Developments in various branches of a company's work, and methods being used in various parts of a company to meet similar problems, stimulate thought and progress.

2. *Knowledge of Responsibility and Authority*—For effective action, a supervisor should have a clear-cut understanding of his responsibilities and his scope of authority. Too often supervisors have but a hazy idea of these matters, simply because they have never been given them directly by their superiors.

3. *Skill as an Instructor*—A supervisor requires the ability to get an idea across to other people with the least expenditure of effort on the part of both the supervisor and the person being instructed. An analysis of a supervisor's responsibilities will show that few can be carried out without some instruction being given to employees.

4. *Skill as an Organizer or Planner*—A supervisor should be able to analyze job methods and to effect improvements in procedure, as well as to apportion work fairly among the personnel, and to set standards of quantity and quality of output.

5. *Skill as a Leader*—A supervisor must gain the cooperation of the personnel in carrying out the purposes of the organization. With or without labor unions, most companies are fully aware of the need for harmonious relationships with employees, if they are to be completely effective at their jobs.

Supervisory training may be carried on in more than one way. The area of responsibility and authority, for example, may perhaps be best covered by individual conference between the supervisor and his superior. Many phases of a program, on the other hand, are probably best handled on a conference-discussion basis. It eliminates the natural resistance to going to school to be lectured. It provides the opportunity for raising practical problems and working out satisfactory solutions. Any company that plans a supervisory training program should first take steps to accquire a skilled conference leader.

#### Conclusions

Finally, some general conclusions from the experiences of several companies merit attention:

1. It is usually better to select one objective at a time, for example, skill in instruction, and to cover it fully rather than to cover superficially a broad range of subjects.

2. If this is well done, the impetus for further training will come from the supervisors. At this stage it is well to have them participate in the planning of programs so that they are geared to the supervisors' needs.

3. No training can be effective without follow-up. To say the least, the supervisors' superiors should be familiar with the content of the programs. Follow-up plans may also include additional group conferences, giving individual counsel and assistance, or both.

4. There is the tendency for supervisory training programs to outgrow the "course" stage. The ultimate stage appears to be the development of a conference group that meets from time to time to consider the problems affecting the organization. It may then serve as an important part in the internal communication system of the organization.

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## Progress in Rural Electrification—Final Figures for 1945

During 1945, according to the forthcoming Statistical Bulletin No. 13 of the Edison Electric Institute, some 286,000 farms and 90,000 rural non-farm customers were added to utility lines, bringing the grand total at the end of 1945, in round numbers, to 6,380,000 rural non-farm customers and 3,020,000 farms—a total of 9,400,000.

Of this total number of rural customers, some 1,350,000 are on the lines of REA Cooperatives, and 8,050,000 are served by private companies, municipal systems and the various governmental power districts.

Of the total number of 3,020,000 electrified farms, some 1,051,000, or 35 per cent are served by REA cooperatives, 158,000, or 5 per cent are served by other public bodies and 1,811,000, or 60 per cent are served by privately-owned electric utility companies.

# Production and Distribution of Electrical Equipment for the Coming Year

**By R. S. Peare**
*Vice President, General Electric Company*

Presented before the Annual Sales Conference, Edison Electric Institute, Chicago, April 2-4.

THERE is something tragic about this industry's position at the moment, something tragic about the position of the country. You know, as well as I do, the magnitude of the effort, the skill in planning, the almost desperate desire of our industry to convert the postwar era into the most dramatic achievement of the capitalistic system in its whole history. We put our best brains to work long ago on the job of making certain that there would be no large-scale unemployment after the war—no depression cycle—but on the contrary greatly expanded markets, better products, better working conditions, higher wages, and a more intelligent distribution system. Perhaps we erred somewhat in concentrating too greatly on the spectre of unemployment, and not enough on the possibility of inflation, but our memories of the former were bitter and that urged us on.

The only conclusion that we can draw is that neither the federal government nor the leaders of organized labor quite realized the possibilities of this blueprint industry was drafting. They can hardly have looked at it, and certainly cannot have understood it, to have given it so short a shrift as they have. Of course it is still a good blueprint, and its dimensions and specifications are still valid, but we have been tragically delayed in putting it into action, the odds against us have been increased, the way has been made unquestionably harder.

### Our Stake in Building Industry

If we had to pick out one phase of the present national picture as typical of what has happened, and as representative of the vast task before us, we might pick the building and construction phase. There is no part of our economy in which the electrical industry has a greater present and future stake than in construction, both domestic and business. There is no point at which we can come closer as manufacturers and suppliers of electrical goods and services to making a deep, lasting, and advantageous impression on the average person. There is nothing the country needs more than new places to live and new places to work and produce. And I can't think of another field of activity which can so quickly and so completely activate all the businesses of America. With this great need and this great opportunity before us, we are seeing the most spectacular demonstration of mass inertia, ineptitude, false economics, and political opportunism in our history. What will happen next nobody knows, but the pressure is becoming so great that what does happen may well be untainted by either wisdom or foresight and will merely let off steam.

### Reconversion Off to Good Start

We were getting along pretty well, at one time, with our job of reconversion. At least there was considerable activity, mostly of an expansionist character. Although it may sound like faulty administration, we still looked on it as a healthy sign that between V-J Day and the first of the year there was never a day when we knew how many new plants we had, how many sites had been acquired, how many leases had been taken up. The picture changed almost hourly, it seemed, as we strained for the best solutions to immediately expanded production. You are as familiar as any one with the tangible demands on our industry for the immediate manufacture of both consumer goods and apparatus. Within a few months, and in many cases within a few weeks, production lines that had been turning out weapons were beginning to move with the things we all wanted. I could give you, and we have announced, production figures running into hundreds of thousands of units in certain lines of appliances, but every one of those units has long since been distributed and sold. They disappeared without trace into American homes without spending much time on dealer shelves, and that helped to give rise to the completely unfounded rumor that they were being warehoused against a price rise. Before this group I would not even bother to deny that ridiculous charge.

### Strike Losses

For our part, we have just washed up after a nine-weeks' strike, which completely invalidated the delivery promises and schedules that had been projected at the first of the year. We are now just as optimistic as we were then, if you will allow about a three-month hiatus in your calculations. We were fighting for materials and component parts in January, and a good part of the success we had has now been dissipated because of the carloads of materials that had to be turned away from our plants. We found ourselves off the books of many suppliers, and have had to get in line all over again. Moreover, production lines cannot be turned on and off like a spigot, without permanently damaging some pretty expensive things, such as equipment and human organization.

I think I can tell you, for the chief executive officer of the General Electric Company, that prices as such will not delay our efforts to supply you. The company's position is that we consider immediate production, in unprecedented volume, the most important contribution we can make to the national economy. This production is being assumed in the face of admitted losses on many lines, and we shall fight for and achieve ultimately fair prices if for no other reason than that arithmetic is a sounder argument than politics in the long pull. In our company, and I think in our industry, we have been fortunate enough, thanks to good management, and continued improvement in productive efficiency, to be able to ride out a temporary disadvantage by calling on the vast skill and resources and enthusiasm of elec-

trical people. We are afraid of the result. It might be pertinent to remind certain people in high places that this industry is able to come to bat and score winning runs when the team is behind because it has ploughed back profits in research and lower prices in the past and hopes to do so again, if it is not hindered and multilated by screwballs on the economic fringe.

### Tell People About Cost of Current

While we are on the subject of prices, I wonder if you are really aware of a very startling fact. Between January, 1941 and January, 1946, according to the last Bureau of Labor Statistics Index, the average wholesale price of *all* commodities had risen 32.2 per cent. Among a list of 24 different commodities, ranging from farm products to manufactured goods, among this whole series of pinnacles upon pinnacles of rising prices, there was just one bit of level ground on which the common man could plant his feet. The price of electric current did not rise. *It actually decreased by more than 15 per cent.* Don't keep THAT under your hat. Let America know about it and don't let anybody forget it. It is as important to this country as the related fact that all during the years of our greatest war production, we never had to ration electric power.

Returning to my report, after that deviation, I assume that so far as the apparatus business of General Electric is concerned, you may be primarily interested in our production expectations for fractional-horsepower and fluorescent ballasts—two small-in-size items that are important indices for domestic and commercial power sales in 1946, since they are vital for the operation of all motor-driven appliances and for fluorescent lighting. Realizing the importance of these two vital apparatus lines, we attacked the problem of reconversion at the earliest possible date and with all our financial and manpower resources. Through subcontracting, lease of existing facilities, and construction of new plants, we are seeking desperately to meet the avalanche of orders. Production was beginning to accelerate rapidly when the strike upset our plans, but a new start has been made. We expect to produce twice as many fractional-horsepower motors this year as we turned out in 1940—a very good year—and more than two and one-half times as many ballasts. Next year we expect to turn out three times as many fractional-horsepower motors, and five and one-half times as many ballasts, as in 1940.

Of somewhat less interest to this conference, but of paramount interest to your associates who must serve the new business you bring in, is the outlook for electrical apparatus for generation and distribution. We will not attain maximum use of our facilities this year, because the production cycle for large turbine-generators varies from 12 to 18 months, and generally speaking, our production in 1946 has been determined by schedules given us in 1945 by the War Production Board. However, we expect to achieve a shipping rate in 1947 that will exceed our 1940 output by more than 50 per cent.

We estimate that our switchgear output for the balance of the year will exceed 1940 production by 85 per cent. Next year we plan to achieve 205 per cent of 1940 shipments.

Distribution transformers are another critical item, but even here we plan to ship almost 100 per cent more than in 1940.

### Difficulties of Meter Production

Our power transformer bogie for 1940 is 145 per cent of 1940. For 1947 we should have a 60 per cent increase over our base period.

Our meter and instrument production, always a highly sensitive barometer of your activities, has been beset by tremendous difficulties. Mass production assembly lines were drastically interrupted by the war, and shortages of materials and skilled manpower have been critical bottlenecks in the reconversion. Despite these troubles, assembly lines are beginning to shake down and thousands of meters and instruments are beginning to flow. We expect 1946 output substantially to exceed 1940, and by 1947 that we shall be producing at a rate nearly 100 per cent greater.

Turning to the appliance business, this report is somewhat less definite. One week after the strike was over, we were in production on every appliance that we had been producing when the strike began. This is particularly encouraging, because in several cases, notably washers, we started manufacture a couple days earlier than we expected. The question of how fast we can get up to scheduled rates of production, announced before the strike, depends on how willing our workers are to apply themselves to the job, whether the flow of materials can be maintained at its proper volume, and in the case of new production lines, whether necessary machines and tools are delivered on time. We are going to do everything in our power to build appliances fast, and in quantity, and get them into the hands of consumers.

The production and shipment record prior to the strike was pretty good. At the end of December we had turned out some 2,300,000 appliances. Even during the strike we continued to produce electric clocks, heating pads, and water heaters. But if you consider the appliances by lines, production was spotty. Only four were being made at the scheduled rate or better, and nine were not even in production.

How many appliances were "lost" during the strike it is hard to say. Using the December rate as a basis for figuring, the strike cost the public, as far as General Electric was concerned, 192,000 irons, 67,000 refrigerators, and 18,000 washers, the items that the public apparently needed most. This, of course, was a direct G-E loss. Other manufacturers who looked to us for parts were seriously slowed down, in some cases shut down. In effect, we are now faced with another reconversion, with the advantage that we can pick up where we left off. Hard figures are lacking, but all of you know the appliance business. You know the capacity it has for drive, for almost overnight achievement. Some day soon, while we are still mulling over our troubles, we will turn around and there, behind us, will be a well-filled retail store, and we will be off to the races.

### Appliance Distribution Studied

I don't think I will take your time to discuss distribution of appliances, a highly technical subject with which you are better acquainted than I am. But let me give you this much of an assurance, or a feeling, that I have picked up from our people. I am certain that it legitimately characterizes what has been happening in the major old-line companies. Whatever the newcomers, the good ones as well as the overnite specials, may do, I know that the machinery for distributing appliances has been undergoing long and thorough study. I won't say overhauling, because most of the structure was sound, but much of it also represented and reflected appliance distribution needs of an earlier day. Where it had become outmoded, it has been altered. The great emphasis has been first on the new user of our services, who for various economic or geographical reasons had never been a customer; next on the retailer; and so on

in to the producing and distributing core. This reorganizing task has gone on for a long time, under the hands of specialists, and I predict that we shall move back into the appliance-selling era with one of the finest and most efficient distribution machines ever seen by any industry.

### Volume of Air Conditioning Equipment

I would like to say a few words about air conditioning and commercial refrigeration. These lines of equipment use electric motors and control in a preponderance of cases and their omission at an electric power sales conference might not be wise. Oil-fired equipment and gas-fired warm air conditioners add electric load to the lines, and also provide utility companies with an opportunity to serve the public in an important additional way. Production of this equipment during the rest of this year will be far below requirements, because government regulations prevented its manufacture during the war, and there was a substantial reconversion job that had to be done in the industry. Our own distribution for such equipment is well set up, however, and in the next 12 months we expect to channel into the market a volume that will exceed that of any prewar year. Market requirements are substantially greater than the ability of the industry to produce, and it will be necessary to allocate equipment to distributors. In our case this will be primarily on the basis of total estimated market requirements in various areas, and not on a basis of percentage of prewar sales.

In the commercial refrigeration field also, demand will outrun production ability. New types of commercial refrigerated units, such as candy merchandisers, are coming into the picture, and a greatly expanded demand for storage units for frozen food exists. We shall substantially expand production of commercial refrigeration equipment during the year.

In air conditioning, strikes have hurt and there will be only a token production of equipment for the coming season, but for the 1947 cooling season a substantial volume will go to market.

In some instances utility companies have not encouraged the use of air conditioning because of the seasonal characteristic of the load, but many have been interested in the so-called "heat pump," or reversed cycle refrigeration, for the home. This type of equipment provides year-round conditioning and is suitable for commercial as well as domestic establishments. There are many potential industrial applications. One of the important things necessary to bring about wide use of the heat pump is a wide acceptance of air conditioning, and until this comes about there is little likelihood, I am told, that the heat pump can be used for home heating. Utilities might well, therefore, review their ideas on air conditioning. As to lamps, our capacity has been substantially increased since 1940 and I am told that we expect to operate at full capacity indefinitely.

### Production Depends on Good Will

The last production category I want to consider is quite different—the production of good will. Almost overnight we have been compelled to realize an elementary fact, that no matter how efficient our plants may be, no matter how elaborate our research has been, no matter how scientific our management devices, no matter how high our rates of pay, all production in the final analysis depends on the good will of people. All of the other factors come to nought suddenly if employees do not want to produce. The problem of production has now returned from the intricacies of scientific management to the alphabet of human attitudes and human relationships. Without forgetting what we have learned in the specialized fields, we must think now in terms of individuals, what makes them want to work, what makes them want to refrain from working. This is not a matter of technique. We have developed the technique and used it with our customers for years. It is a matter of spending a little more time in our own back yard.

### What People Think of Utility Management

We have forgotten some of the intangibles, and we know more about machines than men, because we have spent more time on them. You may have seen the results of a survey made for N. E. M. A. by the Psychological Corporation a couple of years ago. Its purpose was to elicit the knowledge of ordinary people in respect to our industry, and one of the findings should have shocked us into action. The question was asked as to whether, if the electrical industry were run by government instead of private industry, the individual would get more or less for his dollar; 36.1 per cent of the adults and 51.6 per cent of the high school students thought they would get more, as compared to 35 per cent and 23.9 per cent who thought they would get less. The reason was brought out in the next question; 18.6 per cent of adults and 24.6 per cent of the students said that government operates with no profit and could do the job cheaper; another 5 to 8 per cent said government was more efficient. These answers were given despite the fact that in preceding questions the same respondents had overwhelmingly subscribed to the belief that under private management prices had gone down and quality had improved.

### Sell People on 'American Way'

To me this means one thing. Better than we had supposed, perhaps, we have put across to the public the story of the electric industry's technical performance. But we definitely have not persuaded people that our way of living, the things we live by, the philosophy of the profit system generally, is good for them and for the country. It is a more intimate concept than technical performance. It has more to do with behavior and morals and citizenship. It is a concept that must begin at home, in the family. National advertising and flawless formal public statements are too high-geared for such a concept. It must be pitched lower, and played daily. The fabric of society is woven from threads of the family unit, and from this the pattern takes its form. We have been attacking from the top down, and we should have been working from the bottom up. This is a job that trade or industry associations can never accomplish. It is a job that we must do ourselves, beginning with our employees, in the places where they live and work, in our own home towns.

### Utilities Can Fight Misunderstanding

Utility companies live in home towns and rub elbows with the other citizens all day long. They are ideally situated to combat public misunderstanding of our industrial system. As we, all of us, now return to the public from the wars, in a sense, return with the services and the products they want and understant and respect, let us do more than just sell that service or that product. Let us, perhaps, barter what we have to sell to our fellow citizens in return for the services those citizens offer us. That is what we plan to do in the towns in which we live. If we have any key or theme or pattern by which we are going to direct this collection of techniques we call our public relations, it is that we are going to hitch up our pants and start living with the people—the OTHER people—and get to know them better.

# Progress in Reverse Cycle Heating

By M. M. Smith
*Vice President, Muncie Gear Works, Inc.*

Presented before the Annual Sales Conference, Edison Electric Institute, Chicago, April 2-4.

THE Muncie Gear Works has developed and is manufacturing in limited quantities a reverse cycle house heating unit known as Marvair. This paper will give a brief review of the development of this unit, an analysis of the significance of reverse cycle heating, and a discussion of the future potentialities and possibilities of this type of heating.

Muncie Gear Works has constantly been active in developing improved heating equipment. In their analysis of the heating problems of the future they became convinced of the feasibility of reverse cycle heating for household use. Several years ago, they started an active development program on the reverse cycle heating to provide in the average home a type of heating that cannot be excelled, and which is competitive with other types of heating. Before going into a discussion of the development of the Marvair, it will be desirable to review briefly the considerations that make it such a desirable type of heating.

### Advantages of Reverse Cycle Heating

Reverse cycle heating is basically the ideal type of heating, since it represents the best possible in automatic operation, cleanliness, neatness, compactness, flexibility, and quickness to respond to changes in heating requirements. Heating systems utilizing flame combustion to generate heat introduce many problems, including hazard of explosion, and the most serious of all home hazards, that of fire. This hazard is particularly serious in rural areas because of the lack of adequate fire fighting equipment. For rural homes, reverse cycle heating opens up a field of automatic heating in which it has no competition.

Reverse cycle heating has a very decided advantage over other types of heating equipment since their is no combustion taking place. There are, therefore, no products of combustion to be disposed of, or to result in soot, dirt, or smoke. The Marvair does not require a chimney for its operation, hence permits of greater flexibility in house construction, particularly in the low class housing field and in areas where restrictions require extensive masonry construction for chimneys. The elimination of combustion also eliminates the requirements of a great deal of air, necessary for burning fuel, which in turn results in the reduction of heating requirements. The elimination of odors from stored fuels, together with fire hazard and the elimination of danger of asphyxiation is of great importance in considering the advantages of reverse cycle heating.

### Refrigerator's 'Big Brother'

From the sales standpoint, there are many other advantages in using the reverse cycle system as a heating unit. The Marvair is nothing more than a large edition of the household refrigerator. With the development of hermetically sealed units of large size, all the convenient characteristics of the household refrigerator are duplicated in the Marvair. The experience which the public has had with the automatic household refrigeration unit has proved to them the merits and advantages of this type of equipment. This will prove of advantage in selling the product and in giving the customer confidence in the product and in its performance.

Utilization of the reverse cycle for the heating function makes possible now the construction of a really all-electric home. It eliminates the necessity and expense in bringing in other utility services with resulting saving in development costs. To the electric utilities, as will be pointed out later, it makes available a substantial load for each residence, thereby permitting the spreading of investment costs, handling and accounting costs in service to customers over a much larger electrical demand, resulting in a very substantial overall saving to the customer and a much better load for the utilities.

The development of the Marvair involved first the working out of the mechanics of the reverse cycle system and, secondly, the development of an adequate source of heat. The complete summary of the development of the Marvair is too long and technical to discuss in detail here. Only a brief sum-

*Mr. Smith and his company's heat pumps, described in the accompanying address.*

mary of the high points in the development of this unit need to be considered. The initial work on the heat pump involved a study of cycles, sources of heat, determination of requirements, and many associated technical problems.

### Test Unit Installed in 1944

This experience and work served as the basis for the design of a unit which was installed in a home in Muncie, Indiana, on November 27, 1944. In spite of the fact that this unit was built during the time when the materials desired were not available, and many substitutes in both the mechanical equipment, heat exchanger surface, and accessories had to be made, this unit gave exceptionally good service over the entire heating season. There were three outages during the first season, not one of which was chargeable to the unit. One was a normal fuse failure and the other two occurred when water level in the basement rose above safe operating level for motors. These conditions would have resulted in failure of any other type automatic heating equipment.

During the period from Nov. 27, 1944 to June 11, 1945, the KW hours consumed by this unit were 8,070. This was a one story house 30′ x 28′6″ x 20′ garage. The house construction was plastic on rock lath and celotex with wood siding. The ceiling was insulated with 3 inches blanket type Balsam wool over the living quarters only. The garage and basement were partially heated. This home was maintained at 78° night and day and constituted an unusual load. The following shows the estimates of the same home with Marvair in several cities, based on the degree days for a full year with normal 72° day setting and 68° night setting:

| | *Degree days* | *KWH* |
|---|---|---|
| Indianapolis | 5298 | 7947 |
| Minneapolis | 7850 | 11775 |
| Denver | 5874 | 8811 |
| San Francisco | 3264 | 4896 |
| New Orleans | 1024 | 1536 |
| New York | 5347 | 8020 |

The above degree days data is taken from *Heating & Ventilating Magazine* published charts of the last nineteen years.

One of the most important problems in the development of reverse cycle heating is that of obtaining an adequate source of heat. The ideal source of heat is water, where this water can be obtained at a temperature sufficiently above the freezing temperature in order to insure adequate heat supply without requiring too large a quantity. In regions where the outside temperature is never below 40°F., it is possible to obtain an adequate heat supply from the outside air. Even under these idealized conditions, the utilization of air as a source of heat introduces many problems. These problems are concerned with the handling of large volumes of air to, from, and through the heat exchangers which extract the heat from the air, and also problems of frosting. The advantages of water are that the heat transfer rates are quite high compared with those for air, and that its heat capacity is larger, which requires lower weight, and because of its greater density, very much smaller volumes.

### Water as Heat Source

Early in its program, Muncie Gear Works recognized the importance of water as a source of heat, and also recognized that utilizing ground water indiscriminately would not be at all practical over a long period of time. Accordingly, they made a thorough investigation of the various possibilities of obtaining heat from water without wasting the water. As a result, they have evolved several systems utilizing ground water and also the earth's heat as a source of energy in order to obtain high efficiency of these units. Muncie Gear Works, through their development program on adaptation of various systems of utilizing efficiently ground water and earth heat, feel that they have available for every condition a reasonably economical means of water or earth heat source. They realize that there will be areas where the utilization of water as a source of heat may not be practical. On the other hand, there are likewise places where water supplies are more than adequate. For the rural picture, the utilization of water as a source of heat when tied in with considerable water requirements for other purposes does not present much difficulty. Likewise, the much wider spacing of dwellings in rural areas allows turning water to waste without causing any appreciable change in the ground water level over a long period of time. Where run-off of this water is controlled, it will eventually return to or supplement ground water resources.

In contrast to many other heating units, the performance and specifications of the Marvair can be expressed in a very concise form. Table I lists the principle dimensions of the two sizes now in production. The performance based on a minimum source temperature of 50°F. is also listed in Table I. These simple specifications will permit quick selection of the proper size unit. Because of its operating characteristics and the fact that combustion of air is not required, Marvair can be applied on a different basis than any other heating equipment. Experience has shown that it can handle a house whose heating requirements are about 1/3 greater than the unit capacity when the heating requirements are calculated for conventional systems.

### Tremendous Market

The potential power market for reverse cycle heating is so large that it appears on first consideration to be a fantastic dream. The experience which Muncie Gear Works has had with the Marvair in residential use indicates a potential increase in electric purchases of more than 300% where installations are made in houses where electric ranges and water heaters are used. Where gas is used for these purposes, the increase by installation of Marvair of as much as 1000% or more is indicated.

The reverse cycle unit is potentially an item several times more important than that of all existing household requirements, either in use or considered as a potential use. The comparison of relative energy consumption in the home is perhaps best illustrated by data given by Mr. Sporn in his paper on "The Sixth Ingredient—the Heat Pump, the Importance of its development in Making the All-Electric Home a Reality," which was presented before the Edison Electric Institute. The data given in his paper are tabulated in Table II.

### Will Equalize Power Load

Reverse cycle heating also appears to be a solution to the equalizing of power loads which are certain to become un-

TABLE I

SPECIFICATIONS

| *Motor Size* | *Width* | *Length* | *Height* | *Weight* | *B.T.U. Capacity @ 50° W.* |
|---|---|---|---|---|---|
| 3 hp. | 26¾ | 39¾ | 33¾ | 785 | 50,000 |
| 5 hp. | 26¾ | 39¾ | 33¾ | 975 | 80,000 |

balanced between winter and summer unless electric heating is adapted, because of the widespread usage of summer cooling, particularly in industrial installations. The reverse cycle systems are particularly advantageous in those regions served by power generated from water sources. In these areas, the peak capacity occurs in winter, when heating load using reverse cycle heating would be a maximum.

The Muncie Gear Works considers the outlet for Marvair to be mostly in new homes, designed and insulated to take full advantage of the unit's characteristics. This means that most installations will be in areas not yet developed, so that proper distribution systems can be provided for this greater load by the utilities without penalty.

As pointed out, Marvair as now available will give a coefficient of performance of over four to one with 50° water. This places it in direct competition with other means of automatic heating in most areas. This however, does not represent the ultimate expected of the heat pump for such application. Muncie has under way further developments of the pump as applied to heating and to the combination of heating and cooling. In heating alone, it appears feasible to build units by introduction of improvements now under study which will give an overall performance of 8 to 1. This means that the heat pump has an excellent opportunity to out-perform other heating methods in almost any area.

### Adaptable for All-Year Use

The other possibilities of the heat pump are along lines of adapting it to winter heating and summer cooling. This appears to be entirely feasible, and it would appear that at only moderate additional cost, this dual feature can be obtained in the heat pump. These potentialities are being carefully investigated. In addition to the development work which Muncie Gear Works are carrying out in their own plant, they have set up at Southern Research Institute a project to investigate some technological features of the reverse cycle as applied to house heating and cooling. Potentialities in all these directions appear to make it even more attractive, although merely on the basis of present performance it has a future which cannot be questioned.

Our discussion has been concerned only with the technical facts and the rational advantages of this device. Of still greater importance is the effect which the reverse cycle unit will have in the home. Experience has shown that where simple automatic heating can be supplied at reasonable cost, it will be used. From a purely cost standpoint, none of the automatic heating systems can compete with hand-fired coal or wood circulating heaters. However, since modern heating plants are included in the initial cost of a home and the investment is amortized over a long period, the builder is more concerned with getting something which will give satisfaction, than with a possible saving of a few dollars a month over a period of ten or twenty years. This means, therefore, that the type of heating selected is the one which will give satisfaction and performance.

TABLE II

*Energy Consumption in the Electric Home of Tomorrow—KWH Per Year*

| *Class of Electrical Appliance* | *Without Electric Heat and Air Conditioning KWH* | *Electrically Heated and Air Conditioned by Heat Pump KWH* |
|---|---|---|
| Lighting, Misc. Appliances | 346 | 346 |
| Refrigerator | 312 | 312 |
| Radios | 80 | 80 |
| Flatirons | 64 | 64 |
| Washing Machines | 24 | 24 |
| Vacuum Cleaners | 20 | 20 |
| Toasters | 15 | 15 |
| Electric Clocks | 14 | 14 |
| Roasters | 225 | 225 |
| Ironing Machines | 100 | 100 |
| Percolators | 72 | 72 |
| Space Heaters | 45 | 45 |
| Water Heating | 2,625 | 1,308 |
| Range | 975 | 975 |
| House Heating | 0 | 8,900 |
| House Cooling | 0 | 2,000 |
| Total | 4,917 | 14,500 |

### Answers Housewife's Questions

Inasmuch as the housewife is the one who makes the final selection today on the type heating unit to be desired, the future of the heat pump depends largely on whether it will satisfy her requirements. The modern housewife is very much concerned with problems of health, fire, explosion, asphyxiation, dirt and soot. To the housewife, the home is a place where she spends a large part of her time and she is, therefore, more concerned with these features. From a financial standpoint, the saving in cleaning bills, wear and tear and replacement of furnishings such as rugs, draperies, curtains, and upholstery is an important factor, and can probably justify financially a higher initial cost for this type of equipment, although it is probably competitive in initial cost and cost of operation with other types of equipment which can only approach it in performance. A study of the demand for Marvair indicates a demand almost beyond comprehension. Women everywhere are demanding automatic heat that is clean, safe and dependable. They know the faults and dangers of existing systems, and are ready for Marvair. It is up to the power companies and ourselves to meet this demand and make available to the public this comfort of living to which they are entitled.

## The Utility and Newspaper Advertising

(*Continued from page* 154)

I would imagine that at this point several of you are saying, "Oh, yeah, Stuffy, you've never run a utility and had to deal with politicians."

Some politicians make whipping boys out of utilities because they figure it is popular with the voters. A few undoubtedly are motivated by a genuine interest to safeguard their constituents. Others think it just good campaign talk. Such men are as dishonest as though they were to accept a bribe.

There is nothing so dangerous to the future of this country as is collusion between business and politics or between business and labor and politics designed to hamper the welfare of the masses. If ever I find any such practices, I assure you no amount of advertising copy would sway me. I do not need to tell you that that is the policy of every reputable paper in America today.

Yours is a business that is important to the welfare of this country. We could not have won the war had it not been for the utilities that supplied the power to make the guns and the planes and the tanks and the bombs—all of the supplies that were so magnificently used by our youth on the battlefront.

Tell your story honestly through every reputable medium that exists and have no fear that the American public will not understand. If given all the facts, the collective judgment of the American people can be trusted.

# Some Common Interests of the Home Builders and the Electrical Industry

By Frank W. Cortright

*Executive Vice President, National Association of Home Builders*

Presented before the Annual Sales Conference, Edison Electric Institute, Chicago, April 2-4.

IT is indeed a pleasure for me to have this opportunity of telling you something of the home builders' problems as we face the initial phase of our postwar housing job. We who construct the homes of America, and you who do so much to make them comfortable, certainly have a great common interest and common responsibility. In these trying days of the early reconversion period I suspect we have somewhat similar problems and apprehensions just as we have similar opportunities to better serve the public. I am sure that working in close cooperation we can more nearly reach our common objective which I suggest may be simply stated as "the provision of constantly better, more comfortable and more livable homes for all American families."

Of course, during the war years no civilian housing could be built in this country, except homes necessary to accommodate the inmigrant war worker who moved to a new locality and required shelter for himself and family within accessible distance of the newly constructed war plants or shipyards. Our industry provided in excess of a million such homes in specified localities, of specified size, and required to be sold for $6,000 or less or to rent for $50 per month or less. These homes were built and financed by private enterprise, the only government assistance being mortgage insurance provided for a part of this housing by the FHA. In other areas in which the housing need was purely temporary, the Federal Public Housing Authority constructed temporary shelter most of which is required by law to be demolished when the emergency is declared terminated.

In accomplishing this immense job under the most difficult conditions, the home builders of the nation learned a number of extremely important things. First, they learned to produce more economically than ever in the past through the use of mass production methods. By pre-cutting of lumber, by the construction of panels and sections either on or off the site, and by generally streamlined techniques, great economies were effected. Second, builders learned that the construction of good rental housing in single, double and four family units was excellent business for a number of reasons. Third, they learned the full meaning of Daniel Webster's words when he said, "There are many objects of great value to man which cannot be attained by unconnected individuals, but must be attained, if attained at all, by association." In more than 100 cities vigorous local associations of home builders were established or were revitalized in order that a concerted attack could be made upon the common problem. As a matter of fact in a number of areas, particularly in New England, the local utility companies were extremely helpful in assisting us in this organization work.

It was quickly learned that the builders themselves could not solve all of the problems involved without the advice and support of lending institutions, suppliers of building materials, architects, engineers, local utility companies and others concerned with housing in that community. Therefore, they invited representatives of all of these groups to join with them in a non-voting affiliate or associate membership and as a result a substantial part of the membership of these hundred local home builder organizations today is composed of this type of membership.

The National Association fortunately had established modest facilities in Washington in November 1941 as the war clouds were gathering. As a priority system was evolved and as regulations were written under which the war housing job must be done, these facilities were doubled and doubled and doubled again. As a result of representation on the national level and through industry cooperation in every community, directives were revised and the rules were made so that the war housing job could be accomplished.

During these troublesome times, it was fondly hoped that with the ending of the war the energies of the national and of the local organizations could then be devoted largely to matters of research, to improved techniques and to all phases of home building related to the production of better housing at constantly lower cost. Instead, with the ending of the war, we find ourselves again enmeshed in government regulations, reshackled and restricted to a degree beyond anything placed upon us during the war years. Although restrictions were removed last October 15, and we initiated the construction of some 150,000 dwelling units, the veterans' housing need seemed to be of such proportions as to require the government to declare a state of emergency. A priority system was reestablished and a National Housing Expediter was appointed early in January, armed with an astonishing degree of authority delegated under the War Powers Act, and now has jurisdiction over all agencies of government concerned with the construction industry.

Our goal of one-half million homes in 1946, three-quarters of a million in 1947 and a million in 1948 was increased by the Housing Expediter to 600,000 conventionally constructed homes, 250,000 prefabricated homes, 200,000 temporary dwelling units and 50,000 trailers this year. For 1947, the target was raised to 900,000 conventionally constructed housing units and 600,000 prefabricated homes or homes constructed by partial prefabrication methods.

To accomplish this total goal of 2,700,000 dwelling accommodations in a period of only 22 months, drastic and revolutionary methods were proposed and held necessary by Mr. Wyatt. Among these are the following: an increased production in 1947 of eight times the building materials produced in 1945; the recruitment of one million five hundred thousand new workers in the building trades; the waiving and revision of building codes in many communities; the elimination of all non-essential and deferable commercial and in-

dustrial construction; the channeling of a substantial part of all available building materials into lower cost housing for veterans; premium payments for increased production of building materials and government guaranteed purchase of prefabricated houses where they cannot be sold by the manufacturers.

The challenging goals and the methods proposed by Mr. Wyatt, although received by the public and the press with enthusiasm, have been received by the construction industry with various degrees of skepticism, approval and disapproval. Manufacturers of building materials have openly fought the proposal that Congress provide $600,000,000 for premium payments to stimulate increased production. The Limitation Order preventing the initiation of higher cost housing, extensive remodeling, and non-essential commercial and industrial construction was so severe as to raise the question in many quarters as to whether the essentiality of the veterans' housing need really warranted such action. Furthermore, grave fears have been expressed that the presently serious black market in lumber and other building materials may be greatly aggravated by this action.

All of this brings us up to the question "What is the outlook for the construction of new housing in this country?" At the moment, the Congress is endeavoring to decide what additional authorities it should give to the National Housing Expediter and the administrative agencies of government are preparing further regulations aimed at accomplishing the objectives of the immense veterans' housing program. The industry in all of its branches is confused and uncertain as to the probable results of all this government action as, with the war job finished, it endeavors to re-gear itself to produce an unprecedented volume of housing. As we stand at the threshold of this new era, we long for the nostalgic days of unrestricted operations when the laws of supply and demand and of keen competition were our only problems, but at the moment we endeavor to accept with good grace the conditions which government has placed upon us. As to the outcome of all this planning by government, your guess is as good as anyone's else as to its success or failure—your stake in its success is as great as ours. It is largely up to Messrs. Bowles and Wyatt at the moment.

In any event we know that an unprecedented demand for new housing does exist. The deferment of civilian construction during the war period, the rapid increase in new families, the unprecedented purchasing power, much of which is earmarked for housing, combine to constitute a market such as has never existed in the past. The demand, of course, extends to all price classes of housing but is preponderantly in the lower cost field. It is certainly our common problem to move into and capitalize upon this field by research, improved production methods and new efficiencies in manufacture, distribution and merchandising. Herein lies our opportunity to better serve the public and through cooperation do a far better job than would otherwise be possible.

We home builders must learn what your industry has to offer in modern, practical, affordable lighting and items of equipment of all types and character It is your rsponsibility to learn through our Home Builders' Associations in your communities what the probable market is and how it can best be met. Nationally a joint committee composed of experts from your Institute and from our Association should certainly meet regularly.

This era of electricity in which we live is one of tremendous challenge. The splendid progress you have made, even during war times, in the development of labor-saving and comfort-giving devices is most commendable. Some of you have read of Fritz Burns' postwar house in Los Angeles with its wealth of modern equipment. As you know this is not a model home but rather a laboratory in which every new thing has been incorporated. Infra red rays dry the bather, electric toothbrush and shaver pull out from the wall, an electronic device removes dust from the air, neon tubes light the closets and give any type of room lighting the fancy may suggest. Loud speakers and remote control selectors provide music in any room from either AM or FM broadcasts, canned music purchased from a wire service, or from a record changing phonograph and recorder. Built-in television, inter-room communication, telephone outlets at every key spot, air conditioning, electric dishwashers, controls for overhead garage doors, multiple wiring of all light switches to a common relay, fluorescent lighted mirrors, and mercury switches are some of the things which may come into common usage within the next decade. This glimpse of the home of tomorrow is your challenge to produce all of these so economically that they are within the reach of John Q. Public.

It is common knowledge that nothing sells houses so readily as those features which appeal to the housewife. We are well aware of the tremendous impetus home selling is given with built-in refrigerators, ranges, water heaters, washing machines, exhaust fans, and the electric dishwashers. Considerable progress has been made with FHA and lenders in the matter of including certain of these essential items of home keeping in the mortgage and it is desirable that we work together to the end that in every state they are included in the home of tomorrow.

At our Annual Exposition and Convention here in Chicago both last year and this we were fortunate in having a representative of the National Adequate Wiring Bureau on our program.

More than 12,000 builders and others concerned with the construction of homes registered at this conference and saw the National Adequate Wiring Bureau's exhibit in the Hotel Stevens Exhibition Hall. The story of adequate wiring is being carried to every part of the country. However, there is much to be done in every community by special presentation of the essentiality of sufficient copper.

Since Mr. Wyatt's program includes the objective of 850,000 prefabricated houses, or houses composed of prefabricated panels or parts, during the next 22 months, it may well be asked what are the possibilities of the prefabrication industry producing this volume. Prior to the war the production of prefabricated houses was of modest volume. However, with the need for housing war workers a considerable impetus was given to this type of construction and we know that great progress has been made by the prefabricators. There are a number of well established firms who have developed vastly improved methods and are now in a position to produce a substantial number of houses and more are preparing to enter this field. The finished product of many does not appear different from the conventionally constructed house and in fact really is no different excepting that it is produced in a factory and assembled on the site.

Many outstanding builders for years have manufactured panels and sections under roof and have found it economical to assemble them on the foundation. It is largely a matter of balancing certain economies of purchase and shop con-

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# Water Heating on the March

**By W. F. Ogden**
*Edison General Electric Appliance Company*

Presented before the Annual Sales Conference, Edison Electric Institute, Chicago, April 2-4.

The electric water heater for years has been classified as a "major" appliance. Utility sales executives now award it a new citation—an "investment" appliance. This extra honor is well deserved. The water heater is a sound investment for each customer and worthy of utility encouragement. It is potentially the most profitable source of quick and lasting load in sight.

Money to be made or money to be saved from investments in electric water heating is the principal theme running through each of the points in this discussion. They are factual points gleaned from the authorities of your profession, and combined here to present an industry-wide picture. We will deal first with the customers' investments in water heating. Then, we will consider the invesrments which the plumber, the builder, the manufacturer, his associated interests, and the utilities have in this business.

Most families consider the purchase of a water heater to be an investment first because of its price and then because hot water is accepted by them as a basic necessity. In 1936 the purchase price of a 50-gallon, two unit water heater was $102.00 to which you had to add charges for freight. Compare it with today's price of $103.00 which includes freight, Federal Excise tax and increased labor and material costs. Today's heater is a better product than the old one in ways too numerous to detail here. Suffice it to say the electric water heater is a better buy than ever before.

### Lacks Emotional Appeal

There is little or no emotional appeal about a water heater. We boast that it is installed and forgotten. To remember and to forget at the same time is a neat trick if you can do it. The hot water faucets in a home are tapped 50 times or more per day as contrasted to the electric range oven which may be used once or the home freezer possibly opened twice per day. Nevertheless, we observe that the feminine heart flutters only mildly over the romance of possessing automatic hot water performed electrically, but over frozen foods or electric cooking, her heart does flip flops. The water heater is not flashy. It's a solid investment.

### Mobile Qualities

The electric water heater has a "flueless—install it anywhere" character which puts it in a class of mobility. It is able to avoid costly installation and location headaches common to its competitors. But to work it most efficiently, the pipes and wires connected to it need to be planned by specialists. Your customers are more dependent than ever on you for guidance in such matters. This would seem to present a golden opportunity to win good will plus profit. Your water heating committee, we are informed, has compiled a specimen specification to be used as a guide by utilities with the object of improving the customers' investments in wiring and piping. All will profit from this contribution. Manufacturers, you may be sure, are quick to recognize its value and are exceedingly grateful.

There is an interesting difference between adequate wiring and efficient piping. For electrical conductors, the wise customer invests in large wire sizes to deliver full pressure at the point of utilization. For hot water pipes, your guide recommends the smallest possible size consistent with adequate flow. These small pipes use the excess pressure not needed in hot water pipes rather than to wastefully throttle the flow at a partially opened faucet, thus leaving useless gallons in the line to cool.

There is profit, we find, in the use of tempering tanks, especially where the quantity of hot water used is above normal. On the average, $7.00 per year, at a price of one penny for four gallons, is a possible saving after all fixed charges.

False notions of long standing about the economies of furnace coils are being dispelled quite effectivly with the price of coal up and the pleasure of hiring a shoveler these days highly questionable. With one shovel of coal needed for the furnace coil out of every five put on the fire, and with coal selling at $10.60 per ton in 1946 compared to $8.90 per ton in 1936, the cost of a furnace coil becomes more obvious.

The present scarcity of household servants and the 50 per cent increase in the cost of having household jobs done outside makes every family look more kindly than ever on the blessings of automatic hot water. This condition points up the product faults and questionable economy of monkey stoves, unregulated heaters, and flame fuels.

### Capacity Must Be Larger

Thirty, 40 and 50 gallon sizes have constituted 80-85 per cent of the industries' sales of electric water heaters in the past. The gallons needed and the number of different uses for temperature controlled hot water are increasing. Water heaters must be sized accordingly. Before the days of automatic dishwashers with national acceptance and automatic clothes washers practically in the parlor, each utility gauged its recommended sizing practices in the light of the well-known 85 gallon wash day, or the heaviest day's usage. This generous schedule will continue to be an excellent guide for many investments. Its derivation had a sound foundation—the 1931 N. E. L. A. Report which was followed by an EEI-NEMA Test Specification and later made a NEMA Standard. Ahead of us, however, we see indications of a brand new set of conditions. They must be reckoned with, but a fair appraisal is that the industry is not yet ready to firmly establish the level or time sequence of a new schedule.

However, there are certain points of agreement on this matter which we should note, principally because the subject is new to many of us and the customer's future satisfaction with his purchase is involved.

Authorities who have studied both field and laboratory findings of automatic washers in service and those to come agree first of all that the future of electric water heating is favorably affected by increased emphasis on ade-

quate, automatic hot water. Next, they recognize that the electric way of providing hot water potentially holds greater prospect for more economically meeting the family's needs than other water heating methods. The equipment electricity can offer, its installation requirements, and the energy needed can all cost less and serve better. In nailing down those points our authorities clear up much speculation as to the future.

The situation at hand is that competitive heaters, broadly speaking, are not as well able to meet these heavier demands as are most of the electrics. Time again proves the electric way to be a good investment.

In homes where it is more convenient to wash clothes on several days in the week rather than on one, the water heating job is easy for an electric heater. It generally has ample storage of hot (150F) water to deliver. Both "storage" and "extra hot" water are needed and frequently *not* found present in other heaters.

It takes hot water, and quantities of it, to get things clean. New devices will use it lavishly. So, until we know more about the devices now being sold compared with those soon to come, and know more regarding their use, we will find few authorities willing to be specific. When sufficient information is at hand, the answers derived will carry industry recognition.

### Policies May be Reexamined

While this phase of the customer's investment is being studied, many electric service companies are re-examining their water heater policies. Some are discovering increasing kilowatthour realizations shedding a rosy colored light on the characteristics of this load which previously appeared only mildly attractive to them. This generally leads to more liberal rules and regulations. The type of equipment electric service companies have previously specified for their customers is also up for review. As they face an expanding market, which market today includes many low income families as well as those in the "finger-bowl districts," many companies are liberalizing their restrictions on tank sizes. Their rules previously *compelled* customers to follow sizing practices known to be locally advisable. These companies now depend primarily on sales training and *promotion* for the future of electric water heating in their markets. Other companies are tightening their restrictions and seem unwilling to place the same trust in promotional methods to achieve their goals. These are local problems for executive judgment. On the other hand, the value of industry-wide standards for water heaters becomes more evident as proper sizing, installation, and methods of operating water heaters acquire added customer and dealer importance.

### 8,000,000 Homes Ready for Water Heaters

One fact most of us seem to have overlooked is that there are some eight million or so homes already wired with three-wire services. These homes are ready for the minor extension of a circuit leading to a new water heater. By its addition, the existing conductors could deliver 2.5 times the original energy delivered if an electric range is in service, or about four times the amount without it. This seems like magic, but it's true. Think what it would mean to get four or even two and a half times as many satisfying servings out of a stick of butter!

The house wiring and the appliances used by a typical family where they cook electrically and consume 200 kwhr per month probably represents a total investment of $1,000. In other words, $5.00 of the customer's money is invested in electrical living for each kwhr put to work each month. A water heater can be added for less than 12 per cent or $120.00 additional to this $1,000 investment. The total use increases to 500 kwhr per month, and the dollars invested per kwhr per month drop from $5.00 to $2.25. The electric water heater better utilizes the customer's investment in electrical living.

A family in a home thus equipped has discovered that *added* kilowatt hours cost less, or, in other words, that the first few are higher priced than those that follow. Nationally speaking, the average price paid for all kwhr added to residential use in 1945 was less than two cents per kwhr. This has undermined popular belief that electricity is expensive. A great number of families now believe that it is cheap. Facts like these are constantly applying hidden pressure and drawing us all unalterably toward the all-electric home. It's "Operation Cross-roads" for most of us, with the electric water heater deciding the issue.

Customer investment factors favoring the water heater are supplemented, we find, by equally urgent monetary considerations shared by associated trade interests. The plumber views wartime promises of the "bright new world" more realistically now than he did six months ago. We all do. The laws of self-preservation and that old-fashioned urge for profits are influencing the plumber. He is set up to merchandise his services and sell related devices. His suppliers are now actively encouraging this movement. The all-electric home laundry is working its way right up beside the all-electric kitchen. This appeals to the plumber. It gives him a chance to work his invested capital to a greater extent. He is using the electric water heater to gain his ends.

### Builders Will Cooperate

Builders, we observe, see the water heater as a necessary part of the house. Long term financing of this appliance, as a part of the mortgage, which practice is now possible in most states, has influenced the builder to select better quality and to more carefully size the heater he uses. The builder knows that the smartest way to do business is to give the customers what they want. A conservative appraisal of all the national surveys we have seen indicates that some two to four million families are ready *now* to buy water heaters and that a majority of those customers place electric heaters as their first choice. The builder, therefore, is using the electric water heater to increase the value of his house!

The pump salesman is promising hot water on tap to his prospects, and thereby cultivating an extensive rural market for water heaters. Suppliers of soaps, detergents, and all kinds of hot water devices are awake to the trend. Electric water heater manufacturers themselves have more than doubled in number since 1936. They range in size from basement and backyard shops to assembly lines capable of producing over 2000 per week. This industrial expansion signifies universal faith in the future of this appliance.

It started long ago. A patent was taken out in 1859 to heat water by a storage battery. Since then there have been many costly experiments, painstaking tests, agonizing debates, and hard won compromises. Today, however, the industry has an approved set of standards. These standards are now acceptable on all counts to three-quarters of all electric service companies.

Thus, manufacturers for the first time find a solid foundation on which to build for national coverage and competition in all markets. Expanded manufacturing

(*Continued on page* 168)

# New Edison Electric Institute Tools for Wiring Promotion

By R. F. Hartenstein
*Ohio Edison Company*

A paper presented before the Residential and Home Service Section, Annual Sales Conference, Edison Electric Institute, Chicago, April 2-4

THE day I was trying to detail what I have to say this morning was a day when I was having considerable trouble with an infected tooth. Of course, it had been giving me trouble for some time but as usual, when I mustered up enough courage to decide to go to a dentist, it stopped and I procrastinated. On this particular day, the more I tried to concentrate the more the tooth seemed to hurt. Suddenly I found myself comparing my dental troubles with wiring.

It was a rather homely comparison, yet to me it was an interesting one. For example, when do most of us see a dentist? When we get a toothache. How many people follow the much publicized slogan, "Brush your teeth twice a day and see your dentist twice a year." Perhaps 1 per cent do as they should. The balance wait until a pain strikes them and they are forced to get relief. Isn't the same thing true of wiring?

### Wiring Promotion Needed

Usually the one time a customer gives any thought to wiring is when something happens that causes him to do something about it. We, as an industry, are undoubtedly at fault for not educating him properly, for we have done very little wiring promotion as compared with the widespread "scare of the teeth" publicity. Yet, without good wiring, we cannot expect to gain full advantage of the potencial load available in present and future electrical equipment.

It is a difficult job to promote wiring, because so few branches of the industry promote it. Yet it is a job in which the utilities and manufacturers must take the lead. A good educational start was made just before the war, and now that the war is over our educational program must start all over again. I should like to briefly discuss the plan offered by the Edison Electric Institute Wiring Committee.

At our first meeting late in 1944, it was brought out that very few utilities now have Wiring and Planning Departments. The first job, therefore, would seem to be to organize such departments and start an educational program for the employees who will actively engage in this work. Next, the question of what method of education to use was discussed. While records and films would undoubtedly prove satisfactory, the Committee felt that through the use of slides and mimeographed scripts a more diversified program could be worked out.

### Employee Training Course

The Promotional Sub-Committee, assigned the job of preparing promotional material, worked out 10 outlines—five to be used for employee training, and five to be used in giving talks before different public and industry groups. Accompanying these 10 outlines are a group of 2 in. x 2 in. slides which are now being prepared. The slides cover wiring fundamentals such as adequate and inadequate wiring methods, costs of wiring, comparison of wiring needs as far as appliances are concerned, list of appliances for different rooms in the house, etc. Their use is described in each particular training lesson or talk.

Using slides, instead of films, permits greater flexibility for each talk or training outline. For example, the same slide that is used in one employee training outline can be used in two or three outlines in talks before different groups. Also, by use of this method the cost is kept to a minimum. The Committee has tentatively set a price of $25 for the complete set of slides and outlines. They are expected to be ready for distribution on or about July 1.

This Sub-Committee has already prepared and had published articles on adequate wiring in consumer publications of national circulation, and will prepare additional articles for the same purpose.

The Technical Sub-Committee has prepared drawings for the Water Heater Committee who intend to use them in a suggested specification for water heater installations now in preparation.

### Installation Practice Manuals

This Sub-Committee also is preparing a "Manual of Installation Practices," which will include electric and plumbing installation drawings for:

Ranges
Water Heaters
Dishwashers
Garbage Disposals
Automatic Washers
Clothes Dryers
Room Coolers
Summer Cooling Fans

In view of the fact that water heaters and ranges are expected to be available soon, these sections of the Manual will be published first in loose leaf form and should be ready for distribution about Aug. 1. It will be possible, as soon as the water heater section of the Manual is completed, for power companies to purchase individual sheets showing drawings of their particular type of water heater installations and control. Sheets for the plumbing installations may be purchased separately. It will also be possible for the power company to imprint their name on the sheets they distribute. The same will be true as soon as the range section is ready for distribution. This Manual should prove very helpful to every utility company, because it will show drawings of different methods of electric and plumbing installations now in use throughout the country.

The E. E. I. Wiring Committee also represents the Institute on the all-electric "Industry Committee on Interior Wiring Design." Nine other leading trade associations and technical societies are also members. This Industry Committee recently published a new "Handbook of Residential Wiring Design," which is the result of several years of planning and preparation. It contains a complete revision of the residential standards which appeared in the "Handbook of Interior Wiring Design" pub-

lished in 1937, plus the addition of wiring outline plans for every room in a typical single family house. The Edison Electric Institute agreed to handle its publication and distribution.

Of an original print order of 108,000 copies of the Handbook of Residential Wiring Design (all the paper available at the time), 65,000 were sold in advance of publication date. Eighteen days after publication the first edition was sold out. Quantity orders continue to come in every day. Another large printing order is now under way, and is already almost entirely sold out, even before publication.

One utility company, planning to distribute copies among people in its territory interested in home building and modernizing, ordered 25,000 copies. Individual orders for 5000 copies are common. Contractors and dealers have purchased as many as 1000 copies in single orders.

The book has been sold in quantity to utilities, manufacturers, contractors, dealers, wholesalers and builders. Orders have been received from practically every state in the country, from Canada, Cuba, Mexico, the Canal Zone, Colombia and the Netherlands West Indies. The price of this manual is—

| | |
|---|---|
| Single copies | $.25 each |
| 10-99 copies | .06 each |
| 100-999 copies | .05 each |
| 1000 or more copies | .04 each |

(shipping charges extra)

In practically every case where a utility had ordered a sample copy, quantity orders have followed. It has also been noted that individual orders from towns and sections of cities are often followed by additional orders from the same locality, indicating that the original buyer showed his copy to friends, and they in turn wanted a copy of their own.

A companion handbook, the "Handbook of Farmstead Wiring Design," first of its kind to be published, covers the planning of wiring systems for almost every farm building, for initial electrification of the farm, or to improve existing wiring. Advance orders already total slightly over 40,000.

The cost of the Handbook of Farmstead Wiring Design:

| | |
|---|---|
| Single copies | $.40 each |
| 10-99 copies | .10 each |
| 100-999 copies | .08½ each |
| 1000 or more copies | .07 each |

The Wiring Committee is doing everything possible to produce new tools for wiring promotion. Every electric utility should show great concern over the prevailing wiring situation. Thousands of people who would like to purchase a specific appliance cannot do so, due to inadequate wiring facilities. Many more will purchase equipment that, due to low voltage conditions, will not operate satisfactorily.

In a survey that was conducted just before the war, it was found that where people who lived in the average wired home and then moved into an adequately wired home, 29.4 per cent in kwh was used. This particular survey was made after an educational job had been done by the utility and the contractors' association in educating people on the necessity of installing adequate wiring.

An adequately wired home means an adequate service entrance, circuit breakers instead of fuses for convenience, wiring arranged properly for a good voltage regulation which, of course, requires plenty of branch circuits, the proper type of subdivision centers and plenty of outlets with convenient control.

Again, I say that this Committee is doing everything possible to produce new tools for wiring promotion, but the dissemination of this information must be left in the hands of the utility companies and the manufacturers to make them useful, as well as helpful, to everyone concerned.

## Water Heating on the March

(*Continued from page* 166)

facilities are the first evidence of the benefits from standards. Improvements in quality and in price are assured.

Electric service companies, according to your records, have more reason than any of us to consider the water heater a good investment. The electric water heater's desirable load-building qualities have been proved. It is adaptable to any variety of conditions. Its resulting diversity is excellent. All load factors from meter to generator are favorably affected. It complements the electric range. It doubles or trebles KWH sales to each user. It boosts the residential revenue while lowering the average price charged per unit. It increases net earnings and bolsters up the rate of return. Probably its greatest investment contribution to utility and customer alike is the extent to which it hikes up the electricity used per year per dollar of investment upon which the residential customer is expected to pay a fair return!

We marveled at the ability of utilities to handle war loads with so little expansion. The water heater load is even more unbelievable, and it will stay with us. On the lines of hundreds of utilities, every hour of every day the load from more than a million water heaters is being channeled into night-time and daytime valleys below the peaks which most audibly dictate costs. We continually hear of additional utilities who have decided since the war to make a place in their rate schedules and commercial policies for standard water heaters.

The old "rate problem" as it used to be known in the early days of NELA no longer exists. The 1931 NELA Report stated, "Rates must be low and service right so that customers can afford complete and satisfactory hot water service. . . . Since the average customer is willing to pay between $3.00 and $5.00 a month and uses between 3000 and 4000 kwhr a year, it is suggested that rates which will fulfill these conditions be considered."

Only 46 companies were found then, but 225 meet these requirements today. It is safe to assume that better than 80 per cent of all residential customers now have suitable rates. In terms of higher living costs, a 1.5-cent rate today might equal the pulling power of a 1.2-cent rate in 1936. Rates of seven, eight, and nine mils are common where conditions permit.

The resident of one of these companies told us in 1940 the *real* reason why water heating is on the march! "Every electric water heater sold to an electric range customer makes it possible to increase materially the company's net income from the customer. Furthermore, the off-peak electric water heater is the only major appliance which can be installed without additional investment by the company. . . . A rate reduction is a problem of extreme interest to the utility executive, and can often be solved by going to the residential customer with an electric water heater."

Revenue recovery is one angle. Another view puts it this way. The water heater contributes earnings from its satisfied users to offset losses from the unprofitable users. Regardless of the angle from which we view it, the electric water heater is an investment appliance. We are proud of it! It is receiving our best sales efforts!

# Prime Movers Committee Meeting

**R. M. Van Duzer, Jr., *Chairman***

THE Prime Movers Committee meeting at the Edgewater Beach Hotel in Chicago, May 6 and 7, was attended by 63 members and invited guests.

At a previous meeting the Subcommittee on Steam Contamination, Its Cause and Correction, had submitted its report which was presented to the Executive Committee of the EEI and the AEIC. This report was adopted by both organizations with the understanding that the Prime Movers Committee form a permanent steering committee of the AEIC and industry members that would define the scope of the project, raise funds, select a research location, provide overall direction, and see that periodic reports are made and given to the sponsoring organizations and companies. The chairman appointed the following committee: Mr. C. C. Whelchel, Buffalo Niagara Electric Corp., Chairman; Mr. H. C. Miller, Public Service Testing Laboratory, Maplewood, N. J., Permanent Secretary; Mr. J. N. Landis, Consolidated Edison Co. of New York; Dr. S. F. Whirl, Duquesne Light Co., Pittsburgh; and Mr. S. T. Powell, Consulting Chemical Engineer, Associate Member.

The chairman of the Power Station Data Subcommittee is endeavoring to get the data on all power plant installations made in the past three years submitted to him for distribution to the members of the Committee. During the war the gathering of this data was suspended.

It was reported that the manufacturers of seamless steel and alloy pipe would be unable to furnish the large variety of pipe sizes and wall thicknesses required by the industry within the next few years unless the requirements are very materially simplified. Considerable discussion ensued on this subject and steps are being taken to group the requirements and eliminate some of the sizes and wall thicknesses for which orders are being placed.

The problem of external boiler tube corrosion of furnaces has apparently been arrested by changes made to the pulverized fuel burners to give a better fuel-air mixture and by continual vigilance.

Several interesting cases of the loss of plant capacity due to electrical system disturbances were reported. Some members felt that a house turbine would be of material benefit in maintaining a plant on the line; others thought that the protection given by a house turbine was more fancied than real and adds to the complication without solving the problem of dropping the load on the plant that is too heavily loaded to stay on the line. A number of companies reported the use of low frequency tripouts.

One evening session was devoted to the history and future possibilities of the gas turbine and the experiments now being made by the railway interests on the coal-fired gas turbine. Foreign gas turbine builders will be active competition for United States business in gas turbines, and these units are now offered in capacities up to 20,000 kw.

A number of companies reported the cutting of boiler tubes due to even minute leaks in the baffle due to the high velocity gases passing through the cracks, and due to the change of direction and turbulence the fly ash cut the tubes very rapidly. Several cases were reported where all of the tubes across the baffle had to be welded. This condition is much more severe with high draft loss boilers than with low draft loss boilers where the velocity of gases is much lower.

The Round Table Discussion was considerably shorter than usual due to lack of time, and, while many interesting questions were discussed, most of the subjects had to be left for the next meeting.

The afternoon of the second day the Committee visited the Calumet Plant of the Commonwealth Edison Company of Chicago to inspect the cyclonic furnace installed by the Babcock & Wilcox Company.

# Accident Prevention Committee Meeting

**D. C. Stewart, *Chairman***

THE 32nd meeting of the Accident Prevention Committee was held in Chicago at the Edgewater Beach Hotel on May 6th and 7th, in conjunction with the meeting of the General Engineering Committee of the EEI, and was attended by 26 members and guests.

A high point of the meeting was the address by J. P. Pulliam, president of the Wisconsin Public Service Corporation. Mr. Pulliam's interest in safety and accident prevention work goes back to the early days of his career. During those days Mr. Pulliam was an associate of Charles Scott who was later on a prime mover in the National Safety Council.

Mr. Pulliam opened his talk with the statement that his company had established a Safety Department in 1924, and that through the years no single company activity has produced such a great return from so small an investment. Dismissing the monetary yield as not being of prime consideration, he pointed out that in saving human life, raising morale, and increasing efficiency, the program had more than paid for itself. Mr. Pulliam went on to illustrate how the problem really rested in the hands of top management to see to it that superintendents and department heads be fully sold on safe operation, and then make sure that their subordinates operate in a safe manner.

### Constant Vigilance Essential

"The program must be carried out with patience, kindness, and firmness," said Mr. Pulliam. However, constant watchfulness is the principal price that must be paid. He pointed out that on several occasions the Wisconsin Public Service Corporation has won first prize for their safety record. He has come to dread this recognition, because it is always followed by a slump in safety consciousness that is in turn followed by a series of accidents.

The safety record of Wisconsin Public Service Corporation is a monument to Mr. Pulliam's continued interest in accident prevention work. In 1925 the company's frequency rate was 28.42 and the severity rate 2.63. In 1945 they were 5.21 and .20 respectively. These decreases, he declared, were the result of *eternal vigilance* on his part and on the part of every man and woman in the company. Given this backing and ample funds, Mr. Pulliam felt that such a program would be the success in any company that it is in his.

The Committee discussed at length

the use of the detailed fatality data it had in its files. It was found that in comparing the data for the five years, the low point of 1944 had, unfortunately, proven to be only a dip. The figures are as follows:

| *1941* | *1942* | *1943* | *1944* | *1945* |
|---|---|---|---|---|
| 121 | 121 | 117 | 82 | 104 (preliminary) |

However, as the Chairman pointed out, the ratio of electric shock and burn fatalities to the fatalities as a whole remained constant, as shown:

| | *1941* | *1942* | *1943* | *1944* | *1945* |
|---|---|---|---|---|---|
| Total ... | 90 | 81 | 80 | 62 | 69 |
| Per Cent. | 74.2 | 67.0 | 68.2 | 75.5 | 66.5 |

The average percentage of this type of fatal accident over the five year period is 70 per cent. It is the Chairman's impression that this percentage is found to be constant over the years.

Several of the Committee felt that a classification of the details of this fatality data would be extremely valuable, particularly if classified in such a manner as to illustrate basic unsafe practices which were the causes. The Bell System, one member said, circulated details of their fatal accidents, and these accounts were found to be of interest and help.

#### Meter Readers' Accidents Records Vary

The subject of accidents among meter readers came in for quite a bit of discussion. It was found that 118 out of 343 non-operating disabling or lost time accidents involved this class of employee. The experience record of the companies at the meeting varied a great deal.

Several companies have had no accidents among this group and felt that their comparatively high employment standards and rates of pay were contributing factors. Several of the members voiced the opinion that the original placement of the meter had a great deal to do with it. One company has changed the location of the meters at its own expense with satisfactory results. Another, working through the municipal building code authorities, has placed most of its meters out of doors. It was decided to study the 118 accidents further and decide in the Fall on any future course of action.

The Publicity Subcommittee reported over 100 replies to their questionnaire. These answers showed a need for more sound slide films and additional material for supervisory training programs. The monthly letters are very helpful and should be continued. Enough suggestions were received from the committee for ten or a dozen more safety letters.

#### Neoprene Coating for Gloves

T. B. Claffy, president of Salisbury Rubber Co., appeared before the committee on May 7th and discussed the results of coating rubber gloves with neoprene to combat corona breaks. These tests were found to be of interest but not conclusive. Several members will conduct further tests in their own laboratories.

The committee received with interest the report of the Speakers' Bureau. The Bureau has ben in contact with 15 state associations, and to date has made arrangements for 7 speakers. This Bureau has available men from the industry capable of speaking interestingly as well as authoritatively on Accident Prevention problems.

The committee heard an outline of a sound slide film in process of development, which is to be slanted toward the children in primary and junior high ranges. It will deal with the safe handling of electrical equipment at home, at play, and in school.

The question of a change of the committee's attitude toward mechanical resuscitation equipment was raised, and it was unanimously agreed that there had been no change.

# Electrical Equipment Committee Meeting

**H. S. Fitch, *Chairman***

THE spring meeting of the Electrical Equipment Committee was held on May 6 and 7 at the Edgewater Beach Hotel in Chicago in conjunction with the other engineering committees of the Institute. This marked the resumption of the annual conferences in Chicago which were interrupted by the travel restrictions in force last year. The total attendance of over 350 attested to the interest in these sessions.

In accordance with its regular procedure, the Electrical Equipment Committee devoted most of the first day to a closed meeting. Mr. F. S. Brown presented a summary of the semi-annual Apparatus Trouble Report for the period August, 1945, to February, 1946, covering a total of 147 cases with an average of 25 per month compared with a seven-year of 21 per month. Lightning, or lightning arresters, accounted for 7½ per cent of the total number of failures compared with 12 per cent for the corresponding period last year. Of the troubles classified as major, those occurring most frequently were current breakers—6 (oil breakers—5, air breakers—1), transformers (over 500 kva)—4, synchronous condensers—3, capacitors—3. Of those classified as minor, the more frequent were motors—31, transformers (over 500 kva)—15, constant current transformers—9, induction regulators—8, transformers (500 kva or less)—7. This report was followed by a characteristically active round table discussion of specific cases of trouble with various kinds of equipment.

Mr. Shew distributed for comment copies of a proposed guide for specifications on metal-clad switchgear for indoor service in the 2300 to 15,000 volt range. This had been prepared by the Working Group on Uniform Requirements for Metal-Clad Switchgear, and copies had also been made available to the Triple Joint Committee on Power Circuit Breakers for consideration at its next meeting.

The problem of securing spare parts for old circuit breakers was discussed, and a suggested policy on this matter was approved for transmittal to the Triple Joint Committee for further action.

Accounting procedures for the billing of energy among interconnected systems were described by Mr. Pavely. He pointed out that when one system is interconnected with two other systems, which also are interconnected, it becomes impossible to control the power flow over any one tie line unless phase angle control is provided. While the one system can control the net interchange with both of the other systems, it cannot control independently the power flow to each system. Accordingly the accounting method used must satisfy the discrepancy between actual power flow and contractual agreements. He outlined four basic methods, indicating the circumstances in which each was applicable.

Mr. Berger reviewed some system planning principles of the Philadelphia Electric Company in the light of expansion in recent years, wartime problems and future plans. Decentralization of generating capacity, and the attainment

of reasonable balance between installed capacity and load in the various system areas continue to be basic principles. Progress has been made in obtaining physical separation between the two main bulk power transmission systems to minimize the possibility of widespread system disturbances. A major future problem appears to be the economical expansion of the distribution system to supply higher load densities—this is expected to be accomplished without any radical changes in present principles or methods.

Design of station auxiliaries was the subject of a presentation by Mr. Eales, who put particular emphasis on the importance of simplicity and reliability of the power supply for station auxiliaries. He illustrated his points by descriptions of auxiliary power systems of four new stations constructed since 1940. In two of these dependence was placed mainly on the use of station auxiliary transformers connected to the main generator leads, while in the other two shaft-driven house generators were employed.

A series of discussions on the various aspects of power station lighting was presented by Messrs. Shew, Fitz, and Geiger. Considerable use of fluorescent lighting was mentioned, and a note of caution sounded as to its inapplicability in situations where emergency lighting must be maintained by throw-over to a standby battery. In addition to design considerations attention was called to the importance of regular cleaning schedules for lighting equipment and reflecting surfaces.

Completion by an AIEE Subcommittee of a Recommended Practice for Insulation Resistance Testing of A-C Rotating Machinery was reported by Mr. De Bellis. This is intended for a one year's trial use, and in the meantime the subcommittee is continuing its work and desires to secure additional insulation resistance test data particularly on large generators.

Mr. C. J. Fechheimer described the mechanical features of a system he had designed for the liquid cooling of turbogenerators, and discussed the pertinent characteristics of various liquids which might be used for this purpose.

Increasing activity on the part of the Foreign Practice Group was reported by Mr. DeBeech. He presented the highlights of a story from one of the members of the group on the conditions in Sweden. Mr. Way described activities of the Canadian Electrical Association of interest to the committee.

A short joint session was held with the Transmission and Distribution Committee at which Mr. Flemming presented a discussion of job evaluation in the engineering field, and Mr. Anderson reported on progress of the work of EEI-AEIC-NEMA Joint Committee on Motor Starting Currents.

# Transmission and Distribution Committee Meeting

**L. R. Gaty, *Chairman***

SOME 145 members and guests of the Transmission and Distribution Committee of the Edison Electric Institute were present at the Fortieth meeting held at the Edgewater Beach Hotel, Chicago, Illinois, on May 6, 7 and 8, 1946. The session on the third day was held jointly with the AEIC Cable Engineering Section.

Considerable interest was indicated by the members in system design considerations in providing for the expected large increase in residential loads during the General Engineering Group's Session. T. J. Brosnan, Group Sponsor, indicated that this subject would be on the Agenda of future meetings. A study of costs to provide for the increased load in a particular section of his company's system, prepared by J. W. Bennett, was presented by M. G. Moses. A reduction in distribution costs per kilowatt hour, as the load increases, was revealed. The study showed that over 65 per cent of the investment for distribution was on the secondary side of the transformers.

D. K. Blake presented a report on "Recent Distribution Studies" which indicated that in general, the secondary wire sizes now employed are satisfactory in providing for the increased load. In most instances decreased spacing between, and banking of, transformers were indicated as being more efficient than increasing wire size to take care of increased load.

On behalf of R. R. Habberley, reports of activities of the Standards and Specifications Group were presented, which indicated substantial progress in preparation and issuing of specifications for line hardware, timber products, distribution transformers, etc.

A report on the pole supply situation was presented by the Timber Products Subcommittee. The supply was reported as being critical and no improvement is expected in the near future. Creosote preservative is critically short. Substitutes are being used that do not provide equivalent protection.

At a Joint Session with the Electrical Equipment Committee, a timely report on "Job Education As Applied to Engineering Personnel" was presented by J. D. Flemming, on behalf of I. O. Mall. A method of resolving any job into several factors which then make possible a comparison with widely different jobs was outlined. Engineering positions can be evaluated by this means, as well as routine types of work.

A Progress Report on the work of the Joint AEIC, EEI and NEMA Committee on Motor Starting Currents was presented by J. W. Anderson. It was indicated that a report on single-phase motors would be available for the October meeting.

The Overhead Group's Session, under the sponsorship of H. E. Stites, was highlighted by discussions of burning of wood structures.

Cases of burning of wood structures and pins because of leakage current was described in papers presented by H. E. Long and J. S. Maloy. P. M. Ross, as guest speaker, presented the results of a laboratory study, with illustrations, entitled "Burning of Wood Structures by Leakage Current." An explanation of how the flow of leakage current through wood structures creates sufficient heat to start combustion on a typical structure was given. Several suggested means of preventing this burning were illustrated.

W. McLean presented illustrations of several labor-saving devices developed by his company. An electric drill for use in fastening secondary clevises on brick structures, annual clearing of transmission line rights of way by tractor mowers, and an automatic brake for cable reels were described.

Cable movement was the subject of four papers presented during the Underground Group's Session sponsored by M. W. Ghen. The relationship between temperature and movement of cable was discussed by C. T. Nicholson. C. T. Hatcher discussed the effect of restraint on the movement of cable of different

construction. Sheath cracks in gas filled cable and some remedies were discussed by E. J. Nelson.

Mr. Halperin presented data on the effect of movement on cable life. C. S. Schifreen outlined how manhole design was based on studies of cable movement and sheath life data. The required offset determined by this study, for the expected movement and desired sheath life, was provided for in designing the manholes.

A Progress Report on the 1944 Cable Operation Report was presented by E. F. Nuezel. The cable trouble rate for 1944 is 6.9 which is higher than the 1942 and 1943 rates. The pothead trouble rate is the lowest on record, being only 0.84. The joint trouble rate is 1.1 which is the lowest in six years. The final report is expected to be ready for the printer in the near future.

C. T. Hatcher presented a paper on "Operating Experience With Non-Leaded Underground Cable." Non-leaded cable was used in cases where lower first cost and expected economic life indicated overall economies over lead sheathed cable. Failure rate for the non-leaded cable has increased in the past few years as it nears the end of its economic life. Neoprene jacketed cable has an advantage because of its resistance to deterioration.

Several papers were presented describing proposed systems of underground distribution for new residential areas. A description of the type of transformer housings and terminal boxes was included. Joint use of ditching with the telephone or gas company is planned. The trend towards curved roads and landscaping in new subdivisions may require consideration of underground construction.

A symposium on new and improved insulating materials for electrical wires and cables was presented by several manufacturers. The new synthetic compounds developed during the war were described and promise a considerable improvement in life expectancy and performance of cables. Buna-S, Polyethylene, Butyl, Neoprene and conducting rubber are among some of the newer compounds discussed.

A Joint Session with the cable group of the AEIC was held for discussion of aerial cable. Considerable interest in this subject was evinced because of its possibilities in providing a convenient means of taking care of increased loads without new pole line construction.

A paper on "Primary Aerial Cable Designs" was presented by A. S. Brookes. This paper included information obtained from various manufacturers of the aerial type cable. Shielding above 5 kv is general practice, the methods employed varying among manufacturers. Newer insulating compounds developed may spur a cheaper, more satisfactory design for aerial cable. Messenger designs vary, and the conductivity required has not been settled. The trend is towards factory assembly of cable and messenger.

A general discussion of Aerial Cable was held, which included operating practices, tree trimming requirements, accessories, need for proper protection, installation and operation of the cable, and various applications where the use of aerial cable may be advantageous.

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# Some Common Interests of Home Builders and the Electrical Industry

(*Continued from page* 164)

struction methods against the cost of transportation and assembly on the site. However, as a new industry experimenting with new methods, there are problems yet to be satisfactorily settled. These include arrangements with the labor unions in adjusting jurisdictional disputes, the revision of building codes in nearly all large cities, the establishment of satisfactory distribution methods through retail stores, builders or dealers with the consequent problems of servicing the house after erection and finally the problem of public acceptance of a house produced in a new and unusual fashion.

Actually there is no sharp line between prefabrication and the conventional method of construction, since all housing has to an increasing extent been produced by partial prefabrication and sub-assembly methods. Most conventional builders are convinced that large scale, efficient on the site production is just as economical if not cheaper than factory construction since overhead, transportation, merchandising and servicing costs are a necessary part of the method. I am sure it is safe to say that just as rapidly as prefabrication develops provable economies, the conventional builder will adopt and capitalize upon this method of home construction.

Certain spectacular advances have been made in the design of mechanical cores or utility panels. It is to be hoped that much of the high cost of on site plumbing and heating work may be reduced by doing most of this in a plant. Here again the same economies of mass purchase and streamlined assembly are gained and the same problems of transportation costs, overhead and handling on the site balance out some of the advantages. Here again the labor unions will have much to say and there may be serious, although temporary, resistance by some of the trades unions. In spite of this it seems safe to predict that with each year we will see great strides in the production of these mechanical cores and panels, with consequent savings to the home buying public.

I have said that we are greatly concerned with the maximum production and installation of economically priced washing machines, dish washers, exhaust and air cleaning systems, improved heating systems and all of those mechanical appliances upon which the housewife of today depends to such an extent and which make a new home such an appealing purchase. There is nothing which sells lower cost as readily as a completely modern kitchen. During the depression those of us who were concerned with selling used housing learned that the first thing to be done was to install a completely new kitchen. From now on this is particularly important since with constantly rising building costs, and less domestic help, dining rooms are shrinking to the point of extinction and kitchens are becoming thoroughly livable and enjoyable places in which not only to prepare the food, but in which many meals are eaten. We look to you of the electrical industry to find the answers to the problems of supplying all of these things which insure more healthful, easier and richer living.

In conclusion may I say that as you and we solve our problems with government we should work shoulder to shoulder in moving constantly lower into the great untapped markets of lower priced homes. Let us work with the determination that American free enterprise and ingenuity can and will make available to all of our people the kind of housing and the kind of living which characterized the American race as the greatest, the most ingenious and the most fortunate people on the face of the earth.

# PERSONALS

WILLIAM SCHMIDT, JR., formerly executive vice president of the Consolidated Gas Electric Light & Power Co. of Baltimore, has been elected president of that utility to succeed CHARLES M. COHN, who was reelected chairman of the board.

Mr. Cohn formerly held both offices, but requested that he not be reelected president in order to lighten his official duties and provide advancement for other officers of the company.

HENRY R. COOK, JR. and RALPH L. THOMAS were reelected vice presidents. Other officers elected were: CHARLES P. CRANE, executive vice president; J. THEODORE WOLFE and HERMAN L. GRUEHN, vice presidents. AUSTIN E. PENN was elected secretary and FRANCIS E. RUGEMER was elected treasurer to succeed the late Charles E. Wollman.

Mr. Schmidt began his utility career as a clerk in the employ of the Edison Electric Illuminating Co., one of the predecessors of the present utility company. He first became an officer of the company in 1910, when he was elected secretary. Four years later he was made a director, in 1915 he was elected assistant treasurer, and in 1926 treasurer. It was in 1938 that Mr. Schmidt was elected vice president, the position he held until 1942 when he was elected executive vice president.

Mr. Crane began his service with Consolidated in 1910 when he was employed as secretary in the vice president's office. He was promoted to assistant to vice president in 1919, the position he held until his election as vice president.

Prior to his association with Consolidated, Mr. Crane was connected with the Baltimore & Ohio Railroad Co. at the Baltimore office and later with the War Department in Washington.

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Promotion of RALPH E. NOCK, executive vice president of the Narragansett Electric Co., Providence, R. I., to the position of vice president of the New England Power Service Co. with headquarters in Boston, has been announced.

Simultaneous with this announcement, Samuel C. Moore, president of Narragansett, made public the appointment of WALKER MASON, formerly regional administrator of the War Production Board in New England, as successor to Mr. Nock.

Mr. Nock will head a newly organized department of the service company, which is a unit of the New England Power System, with the title of director of personnel administration. The department will deal with general labor and personnel policy matters. He began his career in the utility field as a clerk with the predecessor to the United Electric Railways Co. in 1912. In 1928, he was named controller of the UER and in 1934 he joined the Narragansett Electric Co. as assistant treasurer. He has been executive vice president of the company since 1942, and is also vice president of the UER.

Mr. Mason is widely known in the business field in Rhode Island. He is a former manager of the Connecticut General Life Insurance Co. in Providence and later became state director of the War Production Board in Rhode Island. For two years he served as regional administrator of the board with headquarters in Boston.

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GEORGE J. BRETT, controller of the Niagara Hudson Power Corp., has been elected a vice president of the corporation. Mr. Brett began his utility career with predecessor companies of the Niagara Hudson System at Niagara Falls, N. Y. He was elected controller in 1941.

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JAMES W. PARKER, president of the Detroit Edison Company, has been elected president of the Association of Edison Illuminating Companies.

Mr. Parker has been president of the Detroit utility since 1944. Starting with the company in 1910, he has been continuously in its service since then except for a year's duty with the War Department in 1918. For 20 years he was chief engineer, in 1935 was elected a vice-president and in 1943 vice-president and general manager. During his association with the company he has organized and directed various engineering projects, including design, construction and operation of power and heating plants.

Mr. Parker is a vice-president and member of the Board of Trustees of the Edison Electric Institute, a past president of the ASME and of the Engineering Society of Detroit and is a member of Detroit and national engineering and industry committees.

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E. R. MITCHELL, who has been serving as acting manager of Union Light, Heat and Power Co., which serves northern Kentucky, has been named general manager of the company. Mr. Mitchell has been in the utility field since 1915.

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JAMES E. HUNT, formerly superintendent of generating stations, Philadelphia Electric Co., has been appointed administrative engineer, electric operations. Mr. Hunt has long been associated with the Philadelphia utility, having started in 1904. Through a succession of assigned duties, he was appointed superintendent of Schuylkill Station in 1917. He served in this position until 1925, when he was made superintendent of Richmond Station. It was in 1939 that he became superintendent of generating stations.

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LEIGHTON B. POTTER has been appointed utiliziation equipment and primary supply engineer, system engineering, Detroit Edison Co. Mr. Potter entered the employ of the company in 1928.

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Major changes in administrative positions of the Virginia Electric & Power Co., Richmond, have been announced by J. G. HOLTZCLAW, president.

The operating area now known as the Potomac district will become the northern division, with headquarters at Alexandria. This new division will be divided into two districts—the Potomac district with headquarters at Alexandria and the Rappahannock district with headquarters at Fredericksburg. John W. Howard has been elected vice president of the company in charge of the northern division. The western division will comprise the present Blue Ridge, Southside and Allegheny districts, with headquarters at Charlottesville. JAMES M. WILSON has been elected vice president in charge of the western division.

HOWARD L. CRUMLEY has been appointed chief engineer of the company and in this capacity will assume system-wide supervision of all engineering and construction work, with headquarters in

the company's general offices in Richmond.

GEORGE E. KIDD is appointed acting district manager, Richmond district; BERNARD J. DORSEY district manager, Peninsula district; RAY C. HOPKINS, district manager, Potomac district; A. J. YOUNG, district manager; Rappahannock district; O. V. SESSOMS, district manager, Allegheny district; E. WILEY FORTUNE district manager, Roanoke district; GEORGE F. DUBORG manager at Arlington; RICHARD M. BUSH district superintendent, Blue Ridge district and WALTER E. MATTHEWS district superintendent, Allegheny district.

Mr. Crumley had been operating vice president of the Virginia Public Service Co. since 1941. When that property was merged with the Virginia Electric & Power Co. in 1944, he became vice president in charge of the western division and now assumes the duties of chief engineer of the merged Vepco System. Mr. Crumley is a member of the AIEE and a former manager of the Reading (Pa.) section.

Mr. Howard became manager of the gas and electric department of the Virginia Public Service Co. in 1928 and in 1930 was transferred to Alexandria as division manager. Since the merger of that company with the Virginia Electric & Power Co. he has been district manager of the Peninsula division with headquarters in Newport News.

Mr. Wilson joined the staff of a predecessor company of the former Virginia Public Service Co., now merged with the Virginia Electric & Power Co., in 1914 and has served in various operating capacities in the Allegheny section of Virginia, including that of district manager of the company at Hinton and later at Ronceverte, W. Va. Since the merger he has been district manager of the Allegheny district at Clifton Forge.

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WALTER DOLBEARE has been named director of Virginia Electric & Power Co.'s new industrial development department. Mr. Dolbeare, who has just returned after five years with the Navy where he served as a commander, has been with the utility since 1927. In that time he has been an illuminating engineer, assistant to the president, manager of the Williamsburg and Suffolk districts, in addition to holding several other positions.

The new department will cooperate with planning boards, chambers of commerce, railroads, and other groups now planning further industrial and economic development in the Vepco territory. Mr. Dolbeare's office will be at Richmond.

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WILLIAM H. ZIMMER and FRED R. RAUCH have been elected vice presidents of the Cincinnati Gas & Electric Co. Both men will continue to administer the functions of their present positions—Mr. Zimmer as treasurer and Mr. Rauch as director of industrial relations. A. C. MOORHAUS, whose retirement as a vice president of the company became effective April 1, will remain as a member of the board of Directors.

Mr. Zimmer has been associated with the company since 1920 when he joined the treasury department of the old Union Gas & Electric Co.

Mr. Rauch joined Cincinnati Gas in 1942 as director of industrial relations. Prior to that time he was employed by the Federal government for eight years in engineering, labor relations and executive positions. He is chairman of the industrial relations committee of the American Gas Association and a member of a similar committee of the Edison Electric Institute.

Mr. Moorhaus has been in the utility field 34 years. He left his native city of Cincinnati in 1911 to go to New York, but the following year became associated with the Sciota Valley Railway & Power Co. at Columbus, Ohio. In 1924 he returned to Cincinnati to become purchasing agent of Cincinnati Gas.

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L. W. BYRON, district sales supervisor of the Wisconsin Power & Light Co. at Beloit since 1933, has been named merchandising supervisor of fourteen districts with headquarters in Madison.

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ARTHUR V. MCKENNA has been appointed merchandise manager of the Weymouth (Mass.) Light & Power Co., a New England Power System subsidiary. He joined the company in 1932, and from 1940 to 1942 was located in the Randolph-Holbrook division in both a sales and public relations capacity. Since then he has been assistant to the superintendent of the Weymouth company.

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R. C. COX has been appointed manager of the newly-created publicity department of the Philadelphia Electric Company, according to an announcement made by Geo. R. Conover, vice president of the Company.

Mr. Cox has been in the public utility business for the past twenty years, and since 1931 has been connected with the Public Relations Department of the Electric Company in Philadelphia.

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Appointment of W. R. WEISE as superintendent of distribution engineering of the Cincinnati Gas & Electric Co. has been announced. Mr. Weise, who has been supervisor in charge of voltage control and rearrangement in electric distribution engineering, succeeds FRANK E. SANFORD, who resigned to join the editorial staff of *Electrical World* in the Chicago office.

A native of Cincinnati and a graduate of the University of Cincinnati with a degree in electrical engineering in 1927, Mr. Weise started in the underground department in 1922 as a cooperative student, later moving to the test department.

In 1926 he joined the electric distribution department, while still a junior in school and upon his graduation in 1927 became a full-time employee. He was placed in charge of the rearrangement program started in 1927 to increase the system's capacity to take care of the increasing load.

Mr. Weise is a member of the Engineering Society of Cincinnati, the Ohio Society of Professional Engineers and Eta Kappa Nu, honorary electrical fraternity.

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HARRY RESTOFSKI, sales promotion manager of West Penn Power Co., Pittsburgh, Pa., has been elected chairman of the National Better Light-Better Sight Bureau. Mr. Restofski succeeds H. P. J. STEINMETZ, vice president, Public Service Electric & Gas Co., Newark, N. J., who has been bureau chairman for the past four years.

Widely known throughout the industry, Mr. Restofski brings to the Bureau an aggressive leadership and long familiarity with all phases of utility promotion. Following graduation from Ohio Northwestern University in 1914, he joined West Penn Power Co. and has been with the company ever since.

After several years in meter and substation work, he became successively assistant to the vice president in charge of the power department, general safety director, assistant to the president, assis-

tant general manager of the company's appliance merchandising subsidiary, training director and personnel director. He assumed his present position of sales promotion manager in 1936.

Mr. Restofski has been active in electrical industry committees, serving for the past year as vice chairman of the Edison Electric Institute's commercial division general committee and chairman of its residential section. He has also been chairman of the Better Light-Better Sight Bureau's home lighting education committee since its organization in 1943. At present, Mr. Restofski is vice president and a member of the board of directors of the Electric League of Western Pennsylvania, a director of the Pittsburgh section, Illuminating Engineering Society and chairman, education committee.

Mr. Steinmetz has been associated with Public Service for more than 25 years and is at present vice president in charge of sales.

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THOMAS J. ROUNER has been elected vice president of the New England Power Co., Connecticut River Power Co., and Bellows Falls Hydro-Electric Corp., wholesale subsidiaries of the New England Power System, with headquarters at Boston. He joined the New England system in 1927 and spent 15 years as principal assistant in the hydro-economics department. He returned last fall after nearly five years' war service to the utility group above mentioned as head of the department, succeeding ARTHUR E. LACROIX, now executive vice president of the New England Power Service Company.

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JAMES T. COATSWORTH, Commercial Director of the Edison Electric Institute, received the Legion of Merit award on May 10, for meritorious service during the war in the post of Assistant Chief, Field Division, National Headquarters, Selective System. The award was made at Washington by Major General Lewis B. Hershey, Director of Selective Service, in a special ceremony.

According to the citation, Mr. Coatsworth was charged with the responsibility of assisting and advising State Directors, their Governors and other individuals whose activities were of moment to Selective Service. He performed outstanding service in coordinating the function of policy liaison of the Selective Service National Headquarters with other national agencies. His services contributed materially to the rapid and efficient mobilization of the armed forces, and to the success of the war effort.

Mr. Coatsworth was called into service in September, 1940, as a Captain and served with Selective Service Headquarters throughout the war, rising through intermediated grades to the rank of Colonel.

He joined the Edison Electric Institute on April 15, following separation from the service.

Prior to the war, Mr. Coatsworth was Sales Promotion Manager for the Public Service Company of Colorado, Denver, Colo.

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C. L. HATHAWAY has been appointed assistant superintendent of the electric production department of the San Diego Gas & Electric Co. Mr. Hathaway joined the company in 1940 as efficiency engineer of the electric production department. Prior to joining the San Diego utility, he was with the Miami Copper Co. in Arizona for ten years and the Southern California Edison Co. for five years.

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O. L. LEFEVER has been appointed chief engineer of the Northwestern Electric Co., with headquarters at Portland, Ore. He was formerly the company's general superintendent. His new duties will involve originating and completing all plans for system expansion and improvement.

Taking Mr. LeFever's place will be TOM PERRY as general superintendent, who will supervise construction and operations in the Portland District, in addition to hydroelectric and transmission activities.

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NELSON B. PHILLIPS has been appointed superintendent of the meter department of the Buffalo Niagara Electric Corp., succeeding EARLE LEFEVER, retired. The general supervision of meter work in what was formerly the western division of the Niagara Hudson Power Corp. has been transferred to Mr. Phillips' office and will be handled in addition to the operation of the Buffalo territory. Mr. Phillips has been active in meter work since 1909 when he joined the Buffalo organization.

C. L. LONGANECKER, formerly superintendent of overhead lines of the Virginia Electric & Power Co., Richmond, has been made supervisor of overhead lines of the company's entire system.

Mr. Longanecker has been a member of the Vepco organization for 21 years, having started with the company in Petersburg, Va., in 1925 as distribution engineer and having been made superintendent of the electric department in Petersburg five years later.

For many years a member of the Vepco system engineering committee, Mr. Longanecker has been active in developing a manual of standard line construction and has done much to provide the information necessary in order that all lines may be constructed on a uniform basis, thus keeping down costs and at the same time assuring reliability and safety.

Mr. Longanecker has spent many hours teaching classes in electricity in addition to the groups he has taught in his own department. His enthusiasm and ability give assurance that he will stimulate system-wide interest in the construction of overhead lines, now an active part of the Vepco expansion program.

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The following changes have recently been announced by E. S. Fitz, general manager of the Electric Department of the Virginia Electric & Power Company:

ROGER S. WALKE has returned from active duty in the U. S. Army and assumed the duties of district superintendent.

ROBERT C. DAFFRON, formerly acting district superintendent, has been appointed assistant district superintendent.

W. W. ARCHER, JR., has been appointed superintendent of stations and substations, Richmond.

S. P. WOOLFORD has been appointed district superintendent of the Albermarle district.

JOHN T. MASON has been named assistant to the general manager of the electric department.

R. E. KIMBALL, formerly acting district superintendent of the Albermarle district, has been made district engineer of the same district.

A. L. JAMESON, formerly assistant to the general manager of the electric department, has been transferred to the sales department as director of customer installations.

## H. R. Stevenson Heads Industry Wiring Committee

H. R. STEVENSON, Detroit Edison Company, has been elected Chairman of the Industry Committee on Interior Wiring Design, and A. C. Bredahl, of Westinghouse Electric Corporation, re-elected as Secretary, at a recent Committee meeting.

Mr. Stevenson succeeds E. A. Brand, Buffalo Niagara Power Corporation, in his new post of Chairman. He was also named Chairman of the Technical Subcommittee, a position formerly filled by Mr. Bredahl.

Under the leadership of Messrs. Brand and Bredahl, the "Handbook of Residential Wiring Design" and "Handbook of Farmstead Wiring Design" were brought to completion.

Over 200,000 copies of the Residential handbook have been sold since its publication in February, and a third printing is in preparation. The Farmstead handbook is also being widely used, orders for over 50,000 copies having been received since March.

The Technical Subcommittee will soon commence work on revising the wiring standards for commercial, public and industrial occupancies. This work has been delayed, pending completion of the residential and farmstead wiring standards.

## Valor Awards for Utility Employees Again Offered by Institute

THE Claude L. Matthews Valor awards, which were suspended during the war, will again be offered annually by the Edison Electric Institute, to honor outstanding acts of courage and devotion to duty by utility employees, in efforts to maintain or restore electric service in the shortest possible time.

All employees of electric utilities, either privately or publicly owned, in the United States are eligible for the awards. Three cash awards of $150 each, with a citation and appropriate lapel emblems, will be made each year to outstanding employees.

Recipients of the awards will be selected by a group of judges appointed by the Prize Awards Committee of the Institute, on the basis of recommendations and evidence submitted to the Committee. Factors to be given weight are the importance of the service affected, the courage, good judgment, quick action and the devotion to duty displayed by the employee. Awards may be given to a group, such as a line crew.

Recommendations, which must be submitted by a chief executive of the utility committee, should be forwarded to the Secretary, Edison Electric Institute, 420 Lexington Ave., New York 17, N. Y., not later than April 1, 1947, for all acts of valor occuring during the year of 1946. Additional information on the preparation of the recommendations may also be obtained from the Secretary.

The Claude L. Matthews Award will make it possible for executives to see that deserving men and women in their companies receive proper recognition for outstanding service—an important morale factor among large groups.

## CONVENTIONS AND MEETINGS

**MAY**

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| 6-7 | Accident Prevention Committee, EEI, Edgewater Beach Hotel, Chicago, Ill. |
| 6-7 | Electrical Equipment Committee, EEI, Edgewater Beach Hotel, Chicago, Ill. |
| 6-7 | Hydraulic Power Committee, EEI, Edgewater Beach Hotel, Chicago, Ill. |
| 6-7 | Prime Movers Committee, EEI, Edgewater Beach Hotel, Chicago, Ill. |
| 6-7 | Transmission and Distribution Committee, EEI, Edgewater Beach Hotel, Chicago, Ill. |
| 8 | Electric Companies Advertising Program, Copy Group Meeting, Cincinnati, Ohio. |
| 13-14 | Arkansas Utilities Association, Hot Springs, Ark. |
| 14-16 | Southeastern Electric Exchange, Home Economics Conference, Atlanta, Ga. |
| 23 | Electric Companies Advertising Program, Management Group Meeting, New York, N. Y. |
| 23-24 | Southeastern Electric Exchange, Power Sales Conference, Asheville, N. C. |
| 24-26 | New Jersey Utilities Association, Spring Meeting, Seaview Golf Club, Absecon, N. J. |
| 28-29 | Pennsylvania Electric Association, Engineering Section, Penn Harris Hotel, Harrisburg, Pa. |

**JUNE**

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| 3-5 | EDISON ELECTRIC INSTITUTE, Waldorf Astoria Hotel, New York, N. Y. |
| 3-6 | National District Heating Association, The Cavalier, Virginia Beach, Va. |
| 3-6 | National Fire Protection Association, Hotel Statler, Boston, Mass. |
| 6 | Accounting Division General Committee, EEI Headquarters, New York, N. Y. |
| 12-14 | Pacific Coast Electrical Association, Inc., Annual Meeting, Fairmont Hotel, San Francisco, Calif. |
| 17-19 | National Electrical Manufacturers Association, The Homestead, Hot Springs, Va. |
| 26-28 | Canadian Electrical Association, Annual Convention, Banff Springs Hotel, Banff, Alberta, Can. |
| 27 | Electric Companies Advertising Program, Copy Group, New York, N. Y. |

**SEPTEMBER**

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| 15-18 | Controllers Institute of America, Commodore Hotel, New York, N. Y. |
| 18-21 | Illuminating Engineering Society, National Convention, Chateau Frontenac, Quebec, Can. |

**OCTOBER**

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| 7-11 | American Gas Association, Atlantic City, N. J. |
| 7-11 | National Safety Congress, Hotels Stevens, Congress and Palmer House, Chicago, Ill. |
| 27-31 | National Electrical Manufacturers Association, Annual Meeting, Hotel Traymore, Atlantic City, N. J. |

**NOVEMBER**

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| 12-15 | National Association of Railroad and Utilities Commissioners, New Orleans, La. |

**EEI ANNUAL MEETING**

**Waldorf-Astoria Hotel, New York**

**June 3-5, 1946**

# EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

*(Continued)*

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